

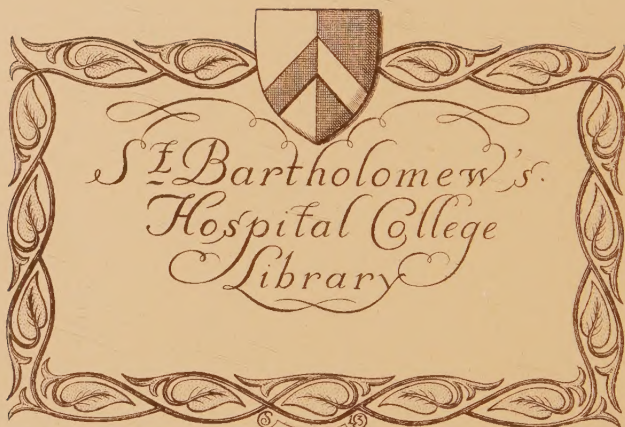
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A Biography of
SIR BENJAMIN WARD RICHARDSON



SIR
BENJAMIN
WARD RICHARDSON
1828-1896

A BIOGRAPHY OF
Sir
Benjamin
Ward Richardson

by

Sir Arthur Salusbury MacNalty

KCB, MA, MD, FRCP, FRCS



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Author's Note

IN WRITING Sir Benjamin Ward Richardson's biography I have received help from a number of sources.

Personal details were given to me by the late Sir William Collins, KCV0, MS, FRCS, who knew Sir Benjamin well and was his colleague on the staff of the London Temperance Hospital; by the late Sir Arthur Newsholme, KCB, who was acquainted with Richardson; and by Dr. L. A. Parry, who was one of Richardson's house-physicians. Dr. L. A. Parry has also permitted me to use material from his admirable account of the trial of Dr. Thomas Smethurst in the *Notable British Trials Series*, published by Messrs. William Hodge & Company, Limited, which gives Richardson's evidence at the trial, and describes the effective action which he took to secure a reconsideration of the case by the Home Secretary.

I am indebted to Dr. John Keevil, DSO, Keeper of the Library, the Royal College of Physicians, for assistance in tracing publications, letters, case-books and manuscripts of Sir Benjamin in the possession of the College.

Messrs. Longmans, Green & Company, Limited, have been most generous in allowing me to include extracts from Richardson's autobiography, *Vita Medica*, published by them in 1897, from Vols. I-XI of *The Asclepiad*, from his *Life of Thomas Sopwith*, and from his novel, *The Son of a Star*. Messrs. Hutchinson & Company have kindly given me permission to quote several extracts from the short *Life of Sir Benjamin Ward Richardson* by his daughter, Mrs. George Martin, prefixed to *Disciples of Aesculapius*, which they published in 1900.

Sir William Collins, Sir Arthur Newsholme and the late Dr. J. D. Rolleston permitted me to refer to their lectures and writings concerning Sir Benjamin, and Mr. Percy Edwards, Secretary to the Chadwick

Trust, has given me information about Richardson's family, and his connection with the Chadwick Trust and the Model Abattoir Society.

I am grateful to Professor Charles Singer for reading the proofs and for helpful criticism.

To Dr. Barbara Duncum special thanks are due for reading Chapter VII of the book on Richardson's researches in anæsthetics and for giving me the benefit of her historical knowledge of the subject.

A bibliography of Richardson's writings will be found at the end of the book, but Sir Benjamin was so prolific a writer and wrote so many articles, signed and unsigned, that it is probably not exhaustive. It does, however, record the principal and most important of his publications.

In the preparation of the bibliography and in the consultation of Richardson's published works I have received much assistance from Mr. G. F. Home, Librarian of the Royal Society of Medicine, from Mr. I. Kaye, Librarian of the Royal Society, and from Dr. J. W. Dudley Robinson, Secretary of the Royal Sanitary Institute, and Miss M. Ellis, Library Assistant.

A. S. M.

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Chapter I

THE DEDICATION TO MEDICINE

*'Now the day drew on that Christiana must be gone. . . .
The last word she was heard to say was: "I come, Lord, to
be with Thee and bless Thee."'*

THE PILGRIM'S PROGRESS

THE COUNTY of Leicestershire is in the heart of England. It is a fertile county, a county of the shires, made of good brown earth for corn and pastures, lying in the central plain for the most part but containing some hilly and rocky ground in Charnwood Forest. Though chiefly agricultural, a hunting county, it has considerable manufactures and is a centre of the woollen industry. It is essentially English, the home of sturdy yeomen, and rich in historical tradition. Ashby-de-la-Zouch, the scene of the famous tournament in *Ivanhoe*, is now a coalfield. Richard III, the last Plantagenet, ended his criminal career at Bosworth Field in 1485, and Cardinal Wolsey in 1530 came to Leicester Abbey, stricken with disease, to lay his bones there. It has produced many great Englishmen, and one of its pleasant villages, Somerby, near to the adjoining county of Rutland, has the distinction of being the birth-place of two famous men of medicine, William Cheselden and Benjamin Ward Richardson, the subject of this biography.

It seems a far cry from the reign of James II to that of George IV: yet the influence of a good and great man extends beyond his life. William Cheselden was born at Somerby on 19th October, 1688. After a surgical apprenticeship to Mr. Wilkes of Leicester he went to London as the house pupil of Cowper, the celebrated anatomist. He next became the hospital pupil of Ferri, the Chief Surgeon to St. Thomas's Hospital and later succeeded him on the staff of that hospital. He was a member of the Company of Barber-Surgeons until 1745, when the

Barbers and the Surgeons dissolved again into two Companies: one remained as the Barbers' Company, the other became "The Master Governors and Commonalty of the Art and Science of Surgeons in London" and eventually the Royal College of Surgeons of England. Cheselden was a principal promoter of the separation of 1745. He wrote the standard treatise on anatomy of his day, *Anatomy of the Human Body*, advanced the operative treatment of lithotomy or 'cutting for the stone', and became famous for his operative treatment of cataract. He was elected Fellow of the Royal Society in 1712, was surgeon to Queen Caroline and the friend of Alexander Pope, who, in his *Imitations of Horace*, verse 39, wrote:

'I'll do what Mead and Cheselden advise.'

He died at Bath on 12th April, 1752, of a paralytic stroke.

Richardson wrote an appreciative memoir of Cheselden and says that 'socially, he was a man much beloved, and fond of all things that make life light and joyous'.

Cheselden's nephew, Colonel Cheselden, inherited his uncle's effects and died at Somerby Hall in the early part of the nineteenth century. At the sale of the Colonel's possessions an oil painting by Panini, once the property of William Cheselden, was bought by William Ward. His granddaughter, Mary, inherited the picture and with it a profound admiration for the surgeon and his life-work: she had spoken with old people who had known Cheselden and were proud of him as a native of their own village. When she married Benjamin Richardson, the painting hung in their dining-room.

Benjamin Ward, the only son of Benjamin Richardson and Mary Ward, was born on All Hallows' Eve, 31st October, 1828. Sir William Collins noted that Benjamin derived his ancestry from the same family as that of Samuel Richardson, 'the father of the English novel', the author of *Pamela* and *Clarissa*. From his birth Benjamin's mother dedicated him to the profession of medicine, in the same religious spirit in which Hannah dedicated the infant Samuel to the priesthood.

When she lay on her deathbed, she called her little son to her and revealed to him her cherished wish. It was the day following the coronation of Queen Victoria, in 1838, and the boy had much to tell her of the local celebrations; the mother listened to this prattle and then clasping her son in her arms told him that she was going away

from him. He must remember her, learn his lessons and above all learn to be a good doctor, for the profession of medicine was the noblest in the world. She mentioned the house near the Rectory where William Cheselden had been born—the great London surgeon, who gave sight to the blind, as she had been told, the former owner of the picture which Benjamin knew well. It would be Benjamin's property one day and he must never part with it. The boy's father had promised to fulfil her last wishes. There were endless means by which her son might not only make sick people well, but might keep the people who were well from becoming ill, so that like those of the Golden City none would say, 'I am sick.' For her own part she was but a few weeks away from her heavenly crown. With words of consolation she comforted the agitated child, bringing to a close this heart-rending scene.

Though Benjamin was only ten years of age he never forgot his mother's dying words. They moulded and directed the whole course of his life, and were inspired by the memory and life-work of William Cheselden, who had then reposed in his grave in Chelsea Hospital for eighty-six years.

Chapter II

THE MEDICAL STUDENT

'We know a few secrets of nature in our profession, sir:' said the doctor. 'Of course we do. We study for that; we pass the Hall and the College for that; and we take our station in society by that.'

MARTIN CHUZZLEWIT

MR. RICHARDSON, as his son relates, 'was goodness itself for ever' in respect to his son's welfare, and in educating him for the medical profession. Benjamin began his education at a Dame's school in the village, where among other things he learned to sew, which made him in his medical practice unusually quick in stitching up wounds, connecting bandages and making them fit with neatness. He then went to a mixed school for a short time, where, though not a victim himself, he disliked the whipping system practised by the master. This gave him a horror of corporal punishment, which he persistently opposed in later life.

After his mother's death and by her wish he became a pupil at the principal boys' school in Leicestershire, Burrow Hill School, kept by the Rev. W. Young Nutt. Here Benjamin spent several happy years and was well grounded in the classics and mathematics. A medical career was ever in his mind and even at this tender age he began reading the Latin pharmacopœia, Celsus and Gregory's *Conspectus*. He read also much general literature—travels, biography and the novels of Sir Walter Scott. This taste for literature gave him a facility and gift for writing good English which was to be of infinite service to him in his professional life.

Though of studious disposition, Benjamin was by no means a book-worm: healthy and vigorous he took part in all the school activities and became a good swimmer and a fair cricketer. His autobiography also recounts several practical jokes, which he and his school-fellows played on the parish clerk, and on Nanny Brown, the village sweet-stuff maker.

On one occasion when taking the part of the fox in the paper-chase,

'fox and hounds,' he made for Syston railway-station and fell into conversation with a dandified young man who was strolling up and down the platform waiting for his train. This was no less a personage than Benjamin Disraeli, the novelist and then rising politician, and their acquaintance was renewed some twenty years later. It was singularly appropriate that Disraeli, who did so much for public health by writing *Sybil*, advocating *sanitas sanitatum: omnia sanitas*, and obtaining the great Public Health Act of 1875 when he became Prime Minister, should meet the young Richardson who was to be active in the same good cause.

There was living at Burrow an elderly semi-retired practitioner named Dr. Wing, whose housekeeper was the sister of a nurse who once saved Benjamin from drowning. The doctor and the boy struck up a friendship and the old man predicted that his young friend if he worked hard would one day be 'a star of the medical firmament'. Dr. Wing pointed out Cheselden's birth-place which was near to his own. He had known an old man who had seen Cheselden, and he himself knew Colonel Cheselden. In this way through the conversation of old and young the torch of tradition was handed on and Benjamin was encouraged to fulfil his medical destiny.

School-days passed and it was now time for Benjamin, in old-fashioned phraseology, 'to be entered on the physick line'. The usual initial step then was to be apprenticed or bound as pupil to a general practitioner. It was a good system, for the pupil learned much from his master, and became acquainted early with the practice of his profession, with patients and the ways and peculiarities of private practice. Richardson wrote: 'I have often said, and again say it, that this method of introduction to our profession, now practically abandoned, was the best that could be, and ought to have remained untouched.' In his memoirs Sir James Paget said that the advantages of apprenticeship were, or at least might be, far greater than is now commonly supposed. Many things of great utility in after-life could be learned thoroughly; things of which the ignorance is now a frequent hindrance to success.

'Can you bleed and give a clyster, spread a plaster, and prepare a potion?' asked Mr. Crab of his intending pupil, Roderick Random. Medical students of those days might be deficient in medical theory, but they were early acquainted with practical measures, and the patients benefited accordingly.

Richardson was apprenticed to Mr. Henry Hudson of Somerby, an

exceptional man, who in addition to instructing his pupil in pill-rolling and dispensing taught him natural history, astronomy, experimental electricity and wood-carving. Hudson was also an antiquarian and interested the boy in this study by taking him to measure the old Roman encampment, Burrow Hill, the ancient Vernometum. At Somerby Benjamin saw his first case of smallpox.

In 1845 it was decided that Benjamin should become a medical student at Anderson's College (then known as 'Anderson's University'), Glasgow, where his cousin, Henry Swann, had graduated. One of the most illustrious of the alumni of this school was Dr. David Livingstone, the missionary and explorer.

Richardson speaks with admiration of his teachers at Anderson's College. They included Dr. Moses Buchanan, the anatomist; Professor James Lawrie, a fine surgeon; Professor J. A. Easton, who taught *materia medica*, invented the well-known Easton Syrup, and who showed Richardson much kindness; the Chair of Chemistry had been filled by the famous Dr. Thomas Graham, who discovered the law of the diffusion of gases and who had enhanced the fame of Anderson's College. But by the time Richardson had entered the college, Graham had gone to University College, London, and Richardson learned his chemistry from Professor Penny, a brilliant lecturer. He knew also Dr. John Burns, a former professor of surgery at Anderson's, and Dr. Thomas Thomson, a famous chemist and physicist.

Gall, with his pupil Spurzheim, had founded the 'System of Phrenology', but by 1845 little was heard of it, and it was generally discredited. It nevertheless still claimed its adherents and one of them named Henderson, as enthusiastic on the subject as Mr. Nicodemus Easy, left a sum of money in order to establish a Chair of Phrenology in the Andersonian Institution. The trustees elected to the Chair, Dr. William Weir, nicknamed 'Woolly Weir', a physician to the Royal Infirmary. George Combe, an ardent phrenologist, who had known Gall and Spurzheim and who expressed a high opinion of George Eliot's intellect based on her cranial circumference, was invited to deliver the inaugural address. For this he required a brain carefully dissected and Benjamin was selected by Dr. Weir to make the preparation. Thereby he obtained his first fee and incidentally learned much about the brain's anatomy. Mr. Henderson's bequest, however, failed to revive the study of phrenology or to add to Dr. Weir's fame.

Benjamin paid much attention to anatomy. Striding through the

streets of Glasgow at this time was an ugly figure of a man with one eye—he had lost the sight of the other through a virulent attack of smallpox—shunned for the most part by his former acquaintances. This was Robert Knox (1791–1862), execrated in 1829 by the mob of Edinburgh for his purchase of the bodies, for dissection, of the victims done to death by Burke and Hare. When he appeared in the streets of Edinburgh, ragged boys and girls would sing after him:

“Down the close and up the stair,
But and ben wi’ Burke and Hare.
Burke’s the butcher, Hare’s the thief;
Knox the lad that buys the beef.”

Knox had been the most popular teacher of anatomy in Edinburgh, and as his classroom could not contain more than a third of his students he had to deliver his lectures twice or thrice daily. A Committee of Inquiry had reported on 13th March, 1829, exonerating Knox and his assistants from all knowledge of the murders, but considered that more care should have been exercised in the reception of the bodies at the anatomical class-room. Knox, however, found it impossible to live down this odium, and in 1841 migrated to Glasgow, where he lectured and taught anatomy at the Portland Street School, a small institution. Richardson attended Knox’s course of lectures and demonstrations there on ‘The Brain and Nervous System’. The course was excellent; the lecturer appears to have taught and demonstrated with his wonted eloquence.

In after-years Knox used to visit Richardson in London, but would talk only on scientific subjects and would never accept any hospitality or meet visitors. He was the author of an ethnological work on the *Races of Men*, a copy of which he presented to Richardson. Knox’s last years were spent in comparative poverty; he lectured, engaged in journalism, did private practice, and when he died was morbid anatomist to the Cancer Hospital at Brompton. His enthusiasm for acquiring subjects for dissection outran his common sense, and for this error he paid a heavy penalty in the shipwreck of a distinguished career.

Richardson saw the first operation performed under a general anæsthetic at the Royal Infirmary, Glasgow, in 1847. It was performed by Professor Andrew Buchanan, Dr. Fleming administering the ether

vapour from a sponge surrounded by a towel. Richardson notes this occasion as a red-letter day in his life. His sensitive mind had been harrowed by the sufferings and shock shown by patients undergoing operation and he hailed Morton's discovery with delight. As will be seen later, Richardson did much afterwards to improve the knowledge and administration of anæsthetics.

Towards the close of his student career, when a resident student at the St. Andrew's Lying-In Hospital and doing obstetrics, Benjamin's studies were seriously interrupted. The Irish famine and distress had caused many Irish families to migrate to Glasgow in search of work. They occupied the slums of the city and brought with them the dreaded 'famine fever'. Benjamin contracted typhus fever through delivering a poor Irishwoman in a cellar dwelling while her husband lay tossing in the delirium of fever on a bed of straw at his wife's side. Fortunately, a healthy constitution prevailed and Richardson made a good recovery after fourteen weeks' illness.

Medical advice prescribed a sojourn in country air and after a short stay at Barrowden in Rutland with his Aunt Susan, who was married to Mr. Price, a surgeon, Richardson went as unqualified assistant to another surgeon, Mr. Thomas Browne of Saffron Walden in Essex. It was a country practice offering opportunities for riding, hunting and shooting; the young convalescent enjoyed all these pursuits and made many friends. He took a great interest in the local natural history museum and learned to lecture there.

His next assistantship was with Mr. Edward Dudley Hudson, at Littlebury, Narborough, near Leicester. Mr. Hudson was the elder brother of his former master—equally erudite, humanitarian and eccentric; he was the possessor of one of the new microscopes in which master and assistant took equal delight.

At Narborough Richardson enlarged his clinical experience and it was almost settled that after taking his Glasgow qualification he should go into partnership with Mr. Hudson. Richardson's destiny, however, was not to be that of an obscure country practitioner. Professor Taylor, who taught chemistry at the Middlesex Hospital, London, in his frequent visits to Mr. Hudson at Narborough had marked the exceptional ability and promise of his friend's assistant, and offered the young man an assistantship near to London with Dr. Robert Willis at Mortlake. The arrangement had already been discussed with Mr. Hudson and agreed to by him. So Richardson went to London, settled matters

with Dr. Willis, saw Phelps, Macready and Charles Kean act, heard Faraday lecture and met the great physicians, Bright, Hodgkin and Addison. He next returned to Anderson's College, where he completed his studies; and in 1850 became a licentiate of the Faculty of Physicians and Surgeons of Glasgow. It is of interest to note here that he became Faculty Lecturer in 1877, and a Fellow of the Faculty in 1878.

Now Benjamin was fully fledged after a creditable though interrupted student career: he had learned much about science and disease and more still about his fellow-beings. He was eager to increase his knowledge and, mindful of his mother's dedication, anxious to prevent as well as to cure human ills. So with high hopes he set off for Mortlake, a pleasant village nestling by the bank of the Thames.

Chapter III

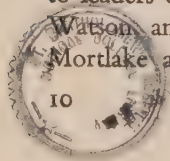
THE GENERAL PRACTITIONER

'As for Doctor Thurnall: a purer or gentler soul never entered a sick room: with patient wisdom in his brain and patient tenderness in his heart. Beloved and trusted by rich and poor, . . . he was something of a geologist, too, and a botanist, and an antiquarian.'

TWO YEARS AGO

RICHARDSON was fortunate in his medical masters. The two brothers Hudson were men of wide interests and culture; Mr. Thomas Browne encouraged his assistant to work at the Saffron Walden Museum and gave him facilities for doing so; and in Dr. Robert Willis, a Scot with a broad accent, whose sister had married Syme, the great Glasgow surgeon, the young man found a learned and good friend. In his youth Willis had travelled on the Continent; he had been Librarian of the Royal College of Surgeons (1828-45), and a lecturer on 'The Practice of Physic' at Aldersgate Street School of Medicine. He had translated Wagner's *Physiology* from the German, the works of William Harvey from the Latin, and *Rayer on Skin Diseases* from the French. He was also joint author with Professor Marks of Göttingen of a little book on *The Decrease of Disease by Civilization*.

Willis was an ardent gardener and an expert on budding roses, and he preferred a country practice to a London one. With Richardson he shared a taste for music, and a firm friendship sprang up between master and assistant which was terminated only by Willis's death in 1878. He, too, offered Richardson a partnership, but held that the young man did right in declining it. Willis's later years were devoted to a study of the life and works of Michael Servetus, an annotated edition of the writings of Spinoza, and the composition of a religious catechism: such a man fostered Richardson's interest in medical history, biography and scholarship. Through Willis he became known to leaders of the medical profession such as Bright and Sir Thomas Watson, and to Professor Owen, a neighbour. Travelling between Mortlake and London, Richardson made the acquaintance of a



fellow-passenger who proved to be Douglas Jerrold, the author, dramatist and wit. Jerrold took a liking to the young doctor, read some of his literary compositions, and introduced him to membership of 'Our Club', where he met Thackeray, Hepworth Dixon, Mark Lemon, John Doran, and George Cruikshank, of whose will he became executor in 1878.

Richardson did not reside with Willis in his house near the church at Barnes, but in a little house of his own at Mortlake, not far off. In this house he fitted up a small laboratory adjoining his bedroom. There were shelves for bottles of specimens and chemicals; physical and chemical apparatus; an old electric battery which Benjamin Franklin had used for his lectures in London in the eighteenth century; a good microscope and a balance. This pleasant room in which Richardson began his researches was called by Dr. Willis 'the life shop', and it naturally evoked the interest of many as a new departure in general practice. When the daily round of visits was over, the prescriptions dispensed and the day's doings entered in the ledger, the zealous young man would return to the little laboratory to continue his researches in chemistry, physiology and anæsthetics. Dr. Willis would come in and watch the experiments and lend a hand when required. Dr. John Rose Cormack from Fairfax House, Putney, and his assistant Dr. Alexander Henry were constant collaborators, and they were joined by Dr. John Snow and Dr. Edward Crisp who came down from London whenever they could manage it. In the dining-room Benjamin had the nucleus of a good scientific and medical library, and in every house in which he lived the laboratory and the library were the two most important rooms.

From the beginning he directed his own researches, the details of which will be described later in their appropriate place. He had learned his technique at Anderson's College, where the medical education was excellent. No doubt, also, his acquaintance with scientific men like Professor Thomas Taylor enabled him to get assistance with many of the problems that beset his inquiring mind. But he never was a pupil research worker, the disciple of some great professor; he never worked in a large and expensively equipped laboratory. His natural genius for inquiry into the secrets of nature led him to take the initiative in research work, to select his own paths of inquiry, to devise his own apparatus and to achieve success. In these days of millionaire benefactions and endowments it is not fully appreciated that, to parody Lovelace:

'Stone walls do not researches make,
Nor costly labs. a scientist able;
Discoveries the world may shake,
Made by a genius in a stable.'

At all events, Richardson, like Claude Bernard, found this to be so, for out of his improvised little laboratories came great things.

Although endowed with vigorous health and tireless energy, Richardson did not pass entirely unscathed by the risks of his profession. In 1850 the Epidemiological Society was founded and he was one of the earliest members. On 7th March 1853, he read a paper to the Society on 'Facts Relating to Scarlet Fever'. He seems to have been unusually susceptible to the disease, for he gives the following account of his own experience in this paper:

'When a child, I suffered, as I well remember, from scarlet fever, during a time when it was occurring epidemically in my native village. The rash was universal, and intensely red; the throat sore; the recovery slow. In the spring of 1850, whilst attending cases of scarlet fever, I sickened, became ill, and passed through a very severe second attack of the disease. The skin was again red, the throat sore and ulcerated, and the recovery gradual. Still more curious, whilst attending a boy, in the month of April 1852, who had a severe attack of scarlet fever, I became exceedingly unwell, suffered from shivering and sore throat, and had a faint red blush on the chest and neck.'

Richardson's conclusions were that the mortality of scarlet fever is greatest in children under ten years of age; is equal in the sexes; is highest in the three last months of the year; is, as a general rule, twice as great in towns as in rural districts; and in its rate of mortality is second only to typhus fever of all the ordinary epidemic diseases. This experience is in striking contrast to the mild character of scarlet fever at the present time.

Richardson found time at Mortlake for many additional activities. He read for his degrees at St. Andrews University, kept himself abreast of the medical discoveries of the time and occasionally visited the Middlesex, Guy's and other London hospitals. He employed one Henry Hirschfeldt to teach him French and German; he visited the famous exhibition of 1851 in Hyde Park several times and marvelled at its wonders. He studied cholera, then raging through the land, and that it was a water-borne disease he must have early learned

through the investigations in epidemiology of his friend, John Snow. With a number of medical friends, including Rose Cormack, Henry, Grant, and Alfred Carpenter, he founded the 'East Surrey Cholera Society', which met to exchange information and to plan methods of prevention and treatment during the prevalence of the epidemic. In these different ways he kept his mental faculties bright and keen by sharpening them against the wits of clever young men of his own age and polishing them with the experience of learned and older men.

His house at Mortlake was near to that part of the Thames over which the Oxford and Cambridge Boat Race is rowed. This led him to investigate the subsequent fate of rowing men, and he concluded that competition had its dangers. He found that the breathing powers of the rower were often oppressed, that the exertion of the race might make him breathless, that his circulation through the lungs suffered, and that athletic rowers did not necessarily become the strongest, healthiest and longest-lived of all mankind. These observations were eventually published in a paper on 'Diseases of Overworked Men' (*Social Science Review*, 1864), and aroused heated controversy at the time. Richardson referred to the subject again in a chapter entitled 'Diseases from Physical Strain' in his *Diseases of Modern Life*, published in 1876.

But he was not always in the laboratory or library, at the bedside of patients, or attending the meetings of learned societies and 'Our Club'. He walked in Kew Gardens; as a popular young doctor he was asked out to dinners and dances and gave little dinner-parties in his house at Mortlake. His fondness for music brought him into the local musical circle, and he became a visitor at the house of Dr. Sterndale Bennett (afterwards Sir Sterndale Bennett) for whose metronome he devised an electric measure. Here he met a young lady who 'played the piano exceedingly well', an ardent and devoted pupil of Dr. Bennett. This was Miss Mary J. Smith of Mortlake—pretty, intelligent and charming. Richardson had a good voice. He composed and sang his own songs or sang the popular songs of the day and Mary Smith played his accompaniments.

Interest in music led to friendship and friendship ripened gradually into love. Soon Mary Smith was listening to Benjamin's account of the researches upon which he was engaged and of his ambitious plans for the future. A confidant of the opposite sex is almost a necessity for a young man of genius. So Mary learnt that Benjamin was finding

out many new and important things in chemistry, anæsthetics and treatment for the benefit of mankind; that, delightful as it was to live at Mortlake and help Dr. Willis, general practice would not give him enough scope and influence for the many things he desired to do; he wished to become a physician in London, and to achieve that end he must be dubbed MD; at present, he was only a Glasgow licentiate, but he had good hopes of soon passing his MD examination at St. Andrews University; later on, he would take the membership of the Royal College of Physicians; already he had the prospects, through Dr. Willis and other good friends, of lectureships and hospital appointments which would help him in making a private practice. Mary sighed happily as her lover poured out all this golden prospect before her in enthusiastic words; it seemed almost too good to be true that this wonderful young man was to link his life with hers. Yet Benjamin did not paint the future in too roseate colours. Though not a Scot by birth, he had received a Scottish education and had returned to England by way of the Great North Road with the intention of taking London by storm. He was fully equipped for the task: he had brains, industry, integrity, a winning personality, and already many influential friends. The world went very well then at Mortlake in the early 'fifties, in spite of the impending shadow of war with Russia and the spectre of cholera at home.

Sometimes the engaged couple would walk out to Barnes Common, covered with grass and furze bushes. In those days it was the seat of a gypsy encampment and their tents of canvas and straw were scattered over the Common. Richardson was the physician-in-ordinary to the gypsies and Mary Smith saw the friendly manner in which they greeted him as they passed by the encampment. It dated from the day of his first visit, when he had been called to see a boy whose spine had been broken by the shaft of a donkey-cart running into his back accidentally. Little could be done in those days to cure such a condition, but Richardson's treatment was skilful and humane. He inspired trust and confidence, and soon was called out at all hours of the day and night to attend gypsy women in their time of travail. This midwifery practice was not lucrative; the fee was frequently remitted on account of the patient's poverty—but it increased Richardson's midwifery experience and led him in the true spirit of scientific inquiry to reflect upon the reasons for certain abnormal conditions which he encountered among the gypsies of Barnes Common, and to compare

them with similar conditions which he had met with as a pupil resident in St. Andrew's Lying-In Hospital.

The gypsy children of this community were not all healthy, and 'more than one gave evidences of the fact that earliest life is sometimes a mere struggle with early death'. 'I began,' said Richardson, 'to see disease, not only from looking at it in the face day by day in the young and old, but as it was manifested even in those who had not yet come into the world. I saw it as it entered the world, and learned how man was born to die as the sparks fly upward.'

While the young doctor pondered these things, by one of those happy coincidences which are not infrequently encountered in life, the Medical Society of London just then offered its Fothergillian Gold Medal for the best essay on the subject of 'Diseases of the Fœtus in Utero'—'Diseases of the Child before Birth'. Richardson decided to enter for this prize and talked the subject over with Dr. Willis, who considered it an unexplored field in medicine and found the notes which his assistant had jotted down of his observations as new as they were to the writer. Harvey, Fallopius and William and John Hunter had only touched the outline of discovery here.

Of course Richardson appreciated that intrauterine life consisted of two stages—embryo and fœtus. He had been taught that the fœtus was a section of the body of the mother and must derive its qualities from her. But he soon realized that the fœtus had its own circulation, its own build, its own movements, its own organs and its own sex. It might inherit its father's diseases as well as his form and general nature. But this abstruse question lay outside the Medical Society's conditions for the Fothergill Essay. The adjudicators desired to know only what the diseases were without reference to cause.

Richardson was well-equipped for the competition. He was acting as surgeon to a lying-in charity and engaging in a large mixed midwifery practice. He had a host of medical friends who were ready to give assistance and information, and he had access to the hospital museums, the Hunterian Museum of the Royal College of Surgeons and the best libraries. His essay progressed steadily and the following is a brief synopsis of it in his own words:

'I readily found that both disease and death were coupled with the dependent yet independent existence before birth. I found and classified diseases arising from perversion of the nutritive process, including increase, decrease, complete arrest or decomposition, local or

general. I found inflammations and their consequences—induration or hardening, *ramollissement* or softening, suppuration; the mucous membranes, the serous membranes, the skin and the structures of organs being involved. I found exudations; I traced out communicable diseases like smallpox, chickenpox, scarlet fever, gonorrhœa, and syphilis; I detected transformations, malignant tumours, softening of bones and fatty degeneration. I saw parasitic developments of the nature of hydatids and entozoa. I discovered inorganic products in cavities and ducts, gall-stones, calculi, salivary concretions, scaly layers, false membranes and various diseases of the skin. I noted mechanical alterations and injuries, with aneurism in the vascular system. In the bony system I found fractures, luxations of joints, and anchylosis; in the muscular system, derangements of functions, convulsions, rigidity, paralysis and epilepsy.

‘In these findings lay the truth that the pathological or diseased condition found after birth might precede it, and what is more, that death even might precede birth.’

Richardson’s views on heredity, and even some of the conclusions he drew as to the causes of intra-uterine disease of the foetus would probably not agree with modern knowledge, but his detailed and precise description of the diseases he found made this essay valuable.

Benjamin’s essay deservedly won the prize in 1854, but it was never published. The original manuscript is in the Library of the Royal College of Physicians. He took the manuscript to Mr. John Churchill, the founder of the well-known firm of medical publishers, who shook his head and explained that his numerous medical readers, engaged day and night in treating the diseases after birth, the diseases of their living patients, would not care a rap about the diseases which took place before birth. Richardson was speechless; he wrapped up the book and left the publisher’s office a sadder and wiser man. On the doorstep he met with consolation, for there he encountered an acquaintance, Dr. Stevenson Bushnan, who edited the *Medical Times and Gazette*, which was owned by Churchill. He looked at the Fothergill Essay, was much pleased with it, and stammered out his disagreement with the commercial views of publishers. Bushnan invited Richardson to join the staff of his journal, and for many years he contributed articles to its pages. As he said, his experience with the Fothergill Essay enabled him to write with authority ‘on the care that ought to be taken of the expectant mother’. It would appear that

Richardson introduced this term which is in such popular use to-day. It is largely used incorrectly for, strictly speaking, a pregnant woman can be an expectant mother only before she has had her first baby. Afterwards, she is a mother. Popular taste has decided that it is a nice 'genteel' phrase for the condition of pregnancy and it has come to stay.

In 1854 Richardson went to St. Andrews, the premier university of Scotland, and obtained the degrees of MA and MD. The MD examination was then open to qualified men who, like Richardson, had obtained their diplomas elsewhere. The examination was of two days' duration and 'was conducted with strict impartiality'. 'The written examination, prepared by Professor Day, MD, FRS, the Professor of Medicine, was a model of its kind, and was supplemented by verbal examinations by himself, Professor Andrew Anderson of Glasgow, Dr. Conner and other distinguished men.'

It is convenient here to complete this account of Richardson's association with St. Andrews. He proved a loyal and true son of the University and it was largely due to his personal initiative that St. Andrews retained the right to confer medical degrees.

Under pressure from the other Scottish universities—Edinburgh, Glasgow and Aberdeen—a Bill was brought into the House of Commons, sponsored by Mr. Cowper (afterwards Lord Mount Temple) and Mr. Brady, giving the powers of medical graduation to the three Scottish universities just mentioned, but withholding such power from St. Andrews, described by Mr. Cowper as only a university in name; 'it was now merely a fishing station'.

Richardson, now well established in practice, called together a meeting of medical graduates of St. Andrews, which founded 'The St. Andrews Medical Graduates' Association'. The new central committee elected Richardson president of the Association, and afterwards re-elected him annually for a period of thirty-eight years. Old St. Andrews men joined from all parts of the world; and Richardson, with this strong Association supporting him, went with a deputation to interview Mr. Cowper and Mr. Brady. He soon showed these gentlemen that the University was infinitely more than a 'fishing station', and that as medical graduates of St. Andrews they had legal rights, learning and numbers. Mr. Cowper admitted his error and promised to help.

It was on Richardson's suggestion that two members of Parliament

were appointed for the Scottish universities, one for Edinburgh and St. Andrews and the other for Glasgow and Aberdeen. The Association was elected to take a representative part in the formation of the new Medical Council in combination with Glasgow, thus preventing the extinction of St. Andrews University as a medical examining body, although by an illogical compromise the number of graduates admitted was reduced to ten a year. The Association published a series of *Transactions* which for many years were ably edited by Dr. Leonard Sedgwick. Richardson contributed essays and addresses, including a practical paper on 'The Treatment of Wounds by the Second Intention'.

Grateful to Richardson for his help in time of need, the University graduates elected him as one of the members of the University Court. He was also elected General Assessor or representative of the Graduates of Divinity, Arts and Medicine, a post which he held for some sixteen years and which brought him into touch with many men of learning. It entailed many visits to Scotland, which became in truth the land of his adoption, for he lectured in all the chief towns of that country. With a friend, Sir William Collins,¹ he made many pleasure trips down the Clyde or on yachting expeditions in the Western Isles. In 1877 St. Andrews conferred on him an honorary LL.D.

In 1854 all these distinctions lay in the womb of time. He had obtained his MD and in conferring it the Principal of St. Andrews had laid on his head the cap which tradition avers was cut out of John Knox's breeches. Something of that staunch divine's reforming zeal and crusading spirit, though naught of his narrow-mindedness and dour temperament, went with Benjamin Ward Richardson as he bade adieu to the peaceful surroundings of Mortlake and sallied forth to make his way in London as a consulting physician. He was only 26 years of age and only four years qualified, but he had stored a wealth of knowledge and clinical experience in his receptive brain during those four more-than-busy years.

¹ Not to be confused with Sir William Job Collins, KCVO, MD, MS, FRCS, who was also a friend of Richardson, and gave the First Memorial Lecture to the Model Abattoir Society on his life and work.

Chapter IV

THE PHYSICIAN

*'Dick had come to high renown:
Since he commenced physician.
Tom was held by all the town,
The deeper politician.'*

DEAN SWIFT

WHEN BENJAMIN WARD RICHARDSON put up his brass plate at No. 12 Hinde Street, off Manchester Square, he became part of a brisk and active medical world. Sir Thomas Watson was the leading physician, Sir Benjamin Brodie the first surgeon; Richard Bright and Thomas Addison of Guy's were making fresh discoveries in medicine and William Jenner of University College Hospital was publishing papers confirming the separate identity of typhoid and typhus fevers. Sir James Paget was achieving a reputation in surgery and Sir Henry Acland contemplated reviving medical studies at Oxford. There was much poverty, disease and social evil in the growing metropolis, but under the pressure of public opinion Parliament had established a General Board of Health which was pursuing an unpopular policy under the autocratic rule of Edwin Chadwick. Dr. Southwood Smith, Dr. Neil Arnott and Dr. J. P. Kay in their reports had brought to light many problems of public health and disease, and a young surgeon at St. Thomas's Hospital, John Simon, who had been given his FRS for pathological research, was showing a remarkable talent for the prevention of disease and had become the first medical officer of health of the City of London.

Scientific reasoning and principles were replacing empiricism, the world was moving away from the old-fashioned physician and his oracular judgments, and the heresy was bruited abroad that discoveries in the laboratory could be successfully applied to the diagnosis and treatment of disease in the wards and at the bedside. Of this new school Benjamin was naturally a staunch adherent.

Outstanding as were Richardson's abilities, he was never in the first rank of London consultants. To gain this distinction he should have

been a member of the staff of one of the great London teaching hospitals, and in those days these hospitals were a very close corporation and seldom appointed as physician or surgeon a man who had received his training elsewhere. Sir Andrew Clark who also settled in London in 1854 and became physician to the London Hospital, was a notable exception to this almost invariable rule.

The house in Hinde Street, which Richardson shared with two friends—Mr. Barton, an elderly man, who belonged to the sect of Positivists, founded by August Comte in Paris, and a scholarly medical recluse, Dr. Henry—had at one time been occupied by Henry Cavendish, the chemist. In the Regency period the house belonged to a Captain Fowler who, by turning all the ceilings into arches built with special earthenware tubes, believed he had constructed a fireproof dwelling. Two cracks in the ceiling of a back room on the ground floor remained as evidence that a huge fire had been kindled beneath to test the fire-proof qualities of the ceiling, while the Prince Regent partook of luncheon in the room above. On the asphalt roof of the house Richardson installed a telescope, and in the cellar a laboratory which was, however, soon to be transferred to a well-lighted room constructed in the back yard.

Richardson's first appointment was that of physician to the Blenheim Street Dispensary. He tells us: 'We had a large practice at this dispensary and a complete staff, the members of which, all on excellent terms, met at each other's houses once a month for a gossip, supper and cards.'

In 1856 he joined also the staffs of the Metropolitan, the Marylebone and Margaret Street dispensaries. In the same year he became physician to the Royal Hospital for Diseases of the Chest, City Road, at that date called the Royal Infirmary for Asthma, asthma being then a common term for most lung diseases; here Richardson obtained material for his paper on alcoholic phthisis. He remained on the staff of the Royal Infirmary for fourteen years, being senior physician at the time of retirement. Later in life he was honorary physician to the Royal Literary Fund, the Newspaper Press Fund, and the Society of Schoolmasters.

Before medical schools in hospitals were properly organized, a number of private medical schools flourished in London in the first half of the nineteenth century. Amongst these was the St. George's School of Medicine, close to St. George's Hospital, known in its latter days as the Grosvenor Place School of Medicine. It was founded in 1830 by Mr.

Samuel Lane, a Professor of Anatomy of some distinction, and he and other able teachers, including Dr. Marshall Hall, taught there. When St. Mary's Hospital was founded in the late 'forties, Mr. Lane became surgeon to that hospital and let his school to Edwin Lankester, MD, FRS, Professor of Botany and the father of Sir Edwin Ray Lankester, the biologist. Lankester obtained as his colleagues on the staff of the School Sir Spencer Wells and Mr. Adams as Professors of Surgery, Dr. Amadée Deville, a refugee from Paris, as Professor of Anatomy, Richardson as Professor of Forensic Medicine, Dr. J. L. Thudichum as lecturer on practical and experimental chemistry, Dr. F. C. Webb, physician to the Great Northern Hospital, and others. Deville's father was said to have been leader of the Mountain during the French Revolution and to have been transported to Cayenne with Collot d'Herbois and Billaud-Varennés after the fall of Robespierre. Richardson says that the son taught anatomy and operative surgery superbly, but that eventually his mind weakened and he died in an asylum in Paris. Richardson added a lectureship on public hygiene to his Chair of Forensic Medicine, but by 1859 had given up both subjects for the Chair of Physiology. He was professor of this subject for several years and became Dean of the school in place of Dr. Lankester, a post which he held until the school was dissolved in 1863; when the building itself, together with the other buildings in Tattersall's Yard, was demolished. Richardson's posts at the school kept him in touch with the academic aspects of physiology and medicine and with medical students.

Examinations presented no difficulty to Richardson, and in 1856 he passed the difficult examination for the membership of the Royal College of Physicians. Another of the successful candidates was Dr. George Rolleston (1829-81), afterwards FRS and Linacre Professor of Anatomy and Physiology in the University of Oxford. This meeting made the two men firm friends. They were both elected to the fellowship of the College of Physicians in the year 1865. In 1866 Richardson was appointed to give lectures on *materia medica* to the College for that year.

In 1858 the leading dentists of England, who at that time had no qualification, decided to plan a College of Dentists, which would be both a teaching and examining body. One of their first measures was to enlist the help of Richardson, who had previously delivered a course of lectures to dentists on 'The Medical History of Diseases of the Teeth', published as a book by Baillière in 1860. The Council of the

intended college took over part of the Royal Polytechnic Institution and fitted up a lecture-room. Richardson lectured and examined on anatomy and physiology; Mr. R. T. Hulme, a dentist, on surgery; Professor Bernays of St. Thomas's Hospital on chemistry; Dr. Spencer Cobbold and Dr. Francis Webb on natural history; and Mr. Perkins taught mechanical dentistry. Richardson also contributed in 1865 a series of papers entitled 'Historical Notes on the Science and Art of Dentistry' to the *Archives of Dentistry* by special request of the editor, Dr. Edwin Truman. This College of Dentists *in embryo* served a useful purpose for several years, but eventually dissolved when the Odontological Society was formed and the Royal College of Surgeons established the Licentiatehip of Dental Surgery.

While on the staff of the Grosvenor Place School of Medicine, Richardson gave expert evidence for the defence in two famous trials, both of medical men. The first trial was that of William Palmer, MRCS, the Rugeley poisoner, in 1856. Richardson gave evidence to the effect that Cook, the victim, did not die of strychnine poisoning but of *angina pectoris*, according to his own scientific knowledge and the opinions of the best authors—Latham, Watson, Boyeau, Pratt and Sir Everard Home. His testimony was not very convincing, and, indeed, negligible from a modern standpoint. He quoted the case of a child aged 10 who was under his care in 1850: the child died suddenly in convulsions during convalescence from scarlet fever. It was characteristic of Richardson that when he saw the nature of the attack he went to get some chloroform for the purpose of producing relaxation of the muscles. He ascribed the child's death to *angina pectoris*, but admitted in cross-examination that if he had known then as much of the nature of strychnia as he did at the time of the trial he would have analysed the body for that substance.

Sir Alexander Cockburn, the Attorney-General, who led for the prosecution, was rather taken aback and perturbed by this new evidence. The medical experts called for the defence had already in turn ascribed Cook's death to four different diseases—general convulsions, arachnoiditis, epilepsy and idiopathic tetanus: now he had to consider *angina pectoris* as a fifth possible cause of death. So much was he concerned that he applied to the judges on the following day for leave to recall Dr. Richardson in order to cross-examine him further. The Court refused consent and Cockburn, feeling annoyed, referred to Richardson's evidence in unjustifiable terms in his final speech. After

complaining that the defence had sprung Dr. Richardson's evidence on him without previous notice, he said:

'The gentleman who was called yesterday at the last moment, and who talked of *angina pectoris*, would not have escaped quite so easily if I had the books to which he referred under my hand, and had been able to expose, as I would have done, the ignorance or the presumption of the assertion which he dared to make. I say ignorance or presumption, or what is worse, an intention to deceive. I assert it in the face of the whole medical profession, and I am satisfied I shall have their verdict in my favour.'

Lord Campbell in his summing-up referred to Richardson as a witness who seemed 'most highly respectable' and emphasized his honest admission on the subject of strychnine poisoning. This was a veiled rebuke to Cockburn for his attack on Richardson's probity.

Richardson was unfavourably criticized after the trial for giving this evidence, for there was no doubt that Palmer was a cruel and deliberate poisoner, a wicked man who had killed many persons previously. Richardson, one can be sure, testified conscientiously and on scientific grounds. He did so at the request of Sergeant Shee, who conducted the defence, and refused to receive any remuneration for his attendance.

The second trial was that of Thomas Smethurst, MD (Erlangen), LSA in 1859. He was accused of poisoning Isabella Bankes, a woman aged 43 with whom he had contracted a bigamous marriage; his wife, who was some twenty years his senior, being still alive. Towards the end of March Miss Bankes became seriously ill with vomiting and diarrhoea. She was attended by Dr. Julius and his partner, Dr. Bird, of Richmond, Surrey; and in April Dr. Todd, a specialist, was called in. The doctors concluded that the patient's symptoms were due to an irritant poison but neglected to take any of the necessary precautions. On 1st May a solicitor, at Smethurst's request, brought to Miss Bankes for execution a will leaving all her property to Smethurst. This she signed in her maiden name. On the following day the doctors communicated their suspicions to a magistrate, and Smethurst was arrested on a charge of administering poison but was released on his own recognizances. On 8th May Miss Bankes died, and Smethurst was re-arrested and charged with murder. At the coroner's inquest and in the police-court proceedings Dr. Alfred Swain Taylor, Professor of Chemistry at Guy's Hospital and a great authority on medical jurisprudence, had testified that he considered Miss Bankes had been

poisoned by antimony and arsenic; and advanced the theory that chlorate of potassium, a bottle of which was in Dr. Smethurst's possession, had eliminated some of the arsenic in the body after it had exercised its poisonous effect.

Richardson's attention was attracted by this statement, and he administered to a dog small doses of arsenic in conjunction with a large quantity of chlorate of potassium; on killing the dog he discovered arsenic in its internal organs—liver, lungs, heart and spleen. He experimented also with arsenic and antimony on two other dogs. Mr. Humphreys, Smethurst's solicitor, heard of these experiments, called on Richardson and asked him to be a witness. Richardson gave evidence that Miss Bankes' symptoms could be explained by dysentery associated with pregnancy, and considered that if she had been poisoned by antimony and arsenic these metallic poisons would have been deposited in the viscera, especially in the liver. Similar evidence was given by two of his colleagues at the Grosvenor School, Dr. J. L. Thudichum, who did much pioneer research in bio-chemistry for the Privy Council and Local Government Board, and Dr. F. C. Webb. Dr. W. Tyler Smith, an obstetrician of repute, gave evidence to the same effect, and pointed out that the death of Charlotte Brontë was due to a similar condition to that presented by Miss Bankes.

In addition to this substantial weight of scientific testimony in the prisoner's favour, Dr. Taylor's previous evidence was seriously vitiated by the fact that at the trial he admitted of his own accord that the copper gauze, which he had employed for Reinsch's test for arsenic in the inquiry, itself contained arsenic.

The four days' trial showed Smethurst to be a greedy, immoral and untruthful person. The judge was convinced of his guilt and summed-up strongly against him. The jury found the prisoner guilty after an absence of forty minutes, and he was duly sentenced to death.

Richardson was convinced that a miscarriage of justice had occurred; and, no doubt, his was the guiding hand in a letter addressed to the Home Secretary, Sir George Cornewall Lewis, Bt., signed by himself, Dr. Thudichum and Dr. Webb, in which their evidence given at the trial was recapitulated and expanded. They informed the public of their action in a letter to *The Times* of date, 30th August, 1859. In a memorial of thirty of the medical practitioners of London, including such illustrious names as Sir Richard Quain, Sir Erasmus Wilson, J. Wharton Jones and J. Russell Reynolds, the Home Secretary was informed

that the evidence from a medical standpoint did not justify the verdict, and the exercise of the royal prerogative of mercy was urged. The memorialists were of opinion that full credit ought to be given to the testimony of Dr. Richardson and his colleagues. There were letters to *The Times* and other newspapers from doctors, lawyers and citizens on the unsatisfactory result of the trial. John Bright and Cobden both wrote to Sir George Lewis on the matter.

The Home Secretary consulted Lord Chief Baron Pollock, who had presided at the trial, on Richardson's letter, the doctors' memorial and other documents. The Lord Chief Baron admitted in his report: 'The medical communications which have since reached you put the matter in a very different light, and tend very strongly to show that the medical part of the inquiry did not go to the jury in so favourable a way as it might, and indeed ought to have done.' But the judge remained convinced of Smethurst's guilt. Sir George Lewis then took the unprecedented course of referring the whole case to Sir Benjamin Collins Brodie, then the leading surgeon in London. Sir Benjamin reported that, although the facts were full of suspicion against Smethurst, there was not absolute and complete evidence of his guilt. Dr. L. A. Parry in his able account of the case in the Notable British Trials Series is of opinion that the evidence, both circumstantial and scientific, completely failed to prove the guilt of Smethurst.

Public opinion was right in holding that the prisoner's guilt had not been proved, and three days before the date assigned for his execution Smethurst was reprieved and received a free pardon. His escape from the gallows was due in no small degree to Richardson's expert advocacy.

These two cases are typical of Richardson's scientific rectitude. In the case of Palmer, a notorious evildoer, a more prudent man, alive to his self-interest, would have refused to testify for the defence. Richardson was not swayed by gain for he refused to be paid for his evidence. He did know, however, as a scientist, that the toxicological evidence for Cook's death was unsatisfactory, and considered that it could be explained by a natural cause. Concerning the Smethurst case, both clinically and scientifically he was on surer ground, but for the black sheep of his profession he could have had no sympathy.

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Chapter V

WORK ON TUBERCULOSIS · MARRIAGE

'He realized the far-reaching net-work of consumption: the very life and habits of the country caught in its toils: and while urging on medical research he never forgot that the problem was a social one as well.'

M. F. M. PRICE: *Sir William Osler—An Appreciation.*

ONE OF the most remarkable features about Richardson's career is the rapid way in which he attained rank as a consulting physician. This was no doubt largely due to his forceful personality, his kindly sympathy with human ills, and the recognition which the leaders of the profession gave to his research work. He also began at the top and had not to serve tables as did the usual run of London physicians. Sir Lauder Brunton, for instance, spent many years as assistant physician in the out-patient department of St. Bartholomew's Hospital, and it was rare in those days for a physician to build up a consulting practice before he had passed his fortieth year.

Richardson retained his professional independence from the beginning, for the appointments he held were those which more experienced and older men would have welcomed. He was a very active member of medical societies, attending meetings with great regularity and seldom failing to contribute matter of value to the discussions, so that his name soon became known to the general practitioners of London. He was also an energetic member of the Metropolitan Counties Branch of the British Medical Association. At the age of 29 he was already celebrated as the winner of the Fothergill Gold Medal and of the Astley Cooper Triennial prize of three hundred guineas, which he received in 1856 from the hands of Dr. Thomas Addison for his essay on coagulation of the blood.

At first, naturally, Richardson had no patients of a remunerative kind nor did he expect them: he occupied himself in the ways just indicated—in hospital work and in his researches. But soon after he had settled in Hinde Street, a gentleman who had heard of his investigations upon the heart arrived to consult him. Benjamin, quite unprepared for such an occurrence, came into the room wearing a green baize apron, with a file in one hand and piece of brass tube in the other, and with some asperity at being interrupted asked the visitor what he wanted. This patient was the precursor of others, and two years later Benjamin's private practice had grown to such an extent and his professional prospects were so good that he was able to marry.

Such success as a consulting physician at so early an age is almost unique. The factors mentioned above were no doubt largely contributory, but the main reason for Richardson's success was his indefatigable industry. He worked throughout his life day and night; and when method and industry are linked with genius all things are possible.

A striking instance of this is the valuable study which he made of pulmonary tuberculosis. Experience as physician to the Royal Hospital for Diseases of the Chest early sufficed to impress upon Richardson the value of hygienic treatment in this disease. In 1856 he published an original paper on the subject in his own journal, the *Sanitary Review and Journal of Public Health*. In 1857 'responding to the wishes of numerous learned and earnest friends' he expanded the paper into a book entitled *The Hygienic Treatment of Pulmonary Consumption*.

In the first chapter the author refers to the advocacy of fresh air and exercise by Salvadori of Trent, a Mr. May, by the American physicians, Benjamin Rush, Dr. Parrish (1830) and Dr. Jackson, and by Dr. Henry MacCormac of Belfast. Later he also refers to Bodington's classical monograph *On the Treatment and Cure of Pulmonary Consumption* (1840), which he had not read when he began his book. The regimen which Richardson prescribed for consumptives could hardly be improved on at the present day in a modern sanatorium. With regard to exercise he held that this should be moderate and not violent: he excluded rowing and racing on foot. At the same time he understood the social implications of tuberculosis treatment and instanced the uselessness of prescribing a light open-air occupation for a poor fancy-box-maker, an adolescent woman in the first stage of phthisis—'You might as well tell me to become a duchess,' she said, 'I have no friends,

and know no other occupation or mode of subsistence, I must work or starve.'

Cases of this kind led Richardson to suggest the advantages of the village settlement, which Sir Pendrill Varrier Jones many years afterwards developed at Papworth with wonderful success. Richardson wrote: 'I want to know whether charity, so inestimable an English virtue, might not stretch out its hand to help the consumption-stricken poor in the dilemma above described? Could not the wealth of this great metropolis raise some little colonies out of town, where the class of consumptive persons who have to live by their own handiwork could find a home in pure air, and an occupation suited to their malady; nay, where industry might be turned to a double use—the obtaining of a livelihood, and the hygienic treatment of the disease.'

In advocating open-air treatment, Richardson was ahead of his time, as he was in other public-health reforms. It was not until the work in Germany of Brehmer at Görbersdorf, and Walther at Nordrach and of Trudeau in America had demonstrated over a period of years the good results of exercise and fresh air treatment that the advantages of sanatorium treatment were recognized and, eventually, in 1912, included in the national scheme for the treatment of tuberculosis.

Richardson did not deny that pulmonary tuberculosis might be contagious, but could not trace it in the cases of the disease he had studied. He believed in hereditary transmission of tuberculosis, not realizing that close familial association favours contact infection. In the value of cod-liver oil he had great faith and rightly condemned blood-letting for hæmoptysis. His conclusion from hospital experience deserves quotation: 'The result is that, from a state of despair as to the success of treatment, I have learned clearly, and from material facts, that, with a simplified medical regime, and a strict attention to the laws of life, without which all physic is vain, consumption is not only a preventible, but, even in its second stage, a curable disease.'

Had Richardson specialized in tuberculosis he might have advanced its effective treatment by half a century. He possessed the right outlook on the disease from the clinical, public-health and sociological stand-points. It was knowledge which workers in that field subsequently took many painful years to learn and appreciate. In his book, Richardson blazed the trail and then left it to be followed up, often without acquaintance with his previous work, by the twentieth-century pioneers. Other interests and activities claimed his versatile

and active mind. Nevertheless, his teaching opened a fresh chapter in the prevention, treatment and arrest of pulmonary tuberculosis, and for this he deserves full recognition.

At the Royal Hospital for Diseases of the Chest, Richardson tells us that he was one of the earliest physicians to use the stethoscope, which was only just coming into common use when he entered medicine. Remembering that Lænnec published the *Traité de l'Auscultation médiate et des maladies des poumons et du cœur*, in 1819, and that Dr. John Forbes soon afterwards translated it into English, it is remarkable how long it took for the British medical profession to acquire the benefit of Lænnec's teaching. Inspired by Richardson, who liked founding societies, the London disciples of Lænnec formed the 'Society for the Study of Chest Diseases' about 1856, and were soon industriously engaged on new work in investigating diseases of the lungs and heart. The chief members of the Society, in addition to Richardson, were John Snow, William Baly, Francis Webb, Andrew Clark, Francis Sibson, Risdon Bennett, George Johnson, Frederick Anstie, John Cockle and Thomas Hawksley. They met in the evenings at each other's houses, partook of tea and light refreshments, and then proceeded to examine one or two patients brought from a hospital, after which a discussion followed. 'The patient,' said Richardson, 'in the end, became as much benefited by our combined experience as we were by our observations.' Out of these observations came Richardson's sphygmograph and sphygmophone (see Chapter VI).

At first Richardson walked his rounds, and he tells an amusing story of how he was called to see a maidservant in a house in Russell Square, and, while waiting in a little drawing-room could not help overhearing the following conversation in an adjoining room:

'Has the doctor seen Rebecca?'

'Oh, yes ma'am! and we have only to send to the dispensary for the medicine.'

'What sort of man is he, and how did he come? Did he drive?'

'Oh! I think you'll like him, ma'am; but—poor devil! he is only a walking doctor yet.'

It cannot have been long after this incident that the size of Richardson's practice justified his acquiring a carriage, as Mr. Perry's would have done in *Emma*.

On 21st February, 1857, Benjamin Ward Richardson married Mary J. Smith. The union was a most happy one: they had several children,

of whom two sons and one daughter lived to grow up. The elder son, Bertram, was a lawyer; the younger son, Aubrey, an artist, became clerk to the Chadwick Trust, and on his death his widow, Mrs. Aubrey Richardson, OBE, was appointed to succeed him. She always cherished a deep admiration and affection for her father-in-law. Richardson's daughter, Mary Stella, married the Rev. George Martin, and wrote a short biography of her father which is prefixed to his book *Disciples of Aesculapius*. The Rev. George Martin was, for the eleven years preceding his death in 1930, Honorary Secretary of the Model Abattoir Society, which was founded by Richardson.

The Richardsons spent their honeymoon at Hastings, and it was there that Benjamin made the acquaintance of another man of letters and medicine—Dr. Greenhill. In 1854 the ever-busy young physician contemplated the publication of the first British public-health journal, the *Journal of Public Health and Sanitary Review*, the first number of which he brought out in 1855. Among the many 'sanitary experts' to whom he wrote asking for advice about the proposed journal was William Alexander Greenhill, MD(Oxon), (1814–1894).

Greenhill was a pupil of Dr. Arnold at Rugby and an exhibitioner of Trinity College, Oxford. After qualification he settled in Oxford, became physician to the Radcliffe Infirmary and gained a fair practice, and married Laura Ward, a niece of Dr. Arnold. He was a classical and Arabic scholar, did much literary work and edited the writings of Sir Thomas Browne. In 1849 he took an active part in dealing with the cholera outbreak at Oxford and contributed to the series of reports on the epidemic and the mortality and public health of the City. His labours were commended by Sir Henry Acland. In 1851 he removed to Hastings for reasons of health, and immediately began to advocate measures and to bring influence upon the Municipal Council for improving the public health and housing of this pleasant seaside resort.

When Greenhill received Richardson's letter he replied warmly, encouraging the plan of the health journal and sending to it contributions on the health conditions of Hastings; so though Richardson had always a most painful diffidence in calling upon strangers and had heard that Greenhill was both reserved and critical, he could not leave Hastings without calling on this valued contributor. The two men, drawn together by common ideals and interests, at once became friends. Another bond between them was Greenhill's admiration of the literary work and learning of Dr. Robert Willis. They corres-

ponded and worked together for many years and Richardson wrote a short biography of Greenhill, which is included in *The Asclepiad*. In that biography he says of Greenhill:

‘He was a man who was great all round: a literary scholar; a practitioner of medicine; a veteran sanitarian. . . . To him, during that long period of forty years, I could refer for any particular information that might be at his command; and from him I always received the assistance needed. Not infrequently, also, he did me the honour to refer for suggestions on various points upon which he himself was engaged, and in which he thought I might render him, in return for his services, some little service of my own. It was a long interval of friendly companionship, a friendship never for a moment broken or to be forgotten.’

Chapter VI

RESEARCHES IN PHYSIOLOGY AND PATHOLOGY

*'To search out and study the secrets
of nature by way of experiment.'*

WILLIAM HARVEY

IN 1850, in his laboratory at Mortlake, Richardson began working on coagulation of the blood; and in 1853 learned that this was the subject of the next Astley Cooper prize. In London he worked steadily at the subject in Hinde Street, and in nearby Bulstrode Mews, where he had found a row of slaughterhouses in which fresh blood could be obtained from cattle. He took one of these and fitted it up as an experimental room, with a barred lair railed off from his working bench. He usually worked here in the early morning before breakfast. On one occasion a savage bullock escaped from the lair into the experimental room and Richardson narrowly escaped being gored to death, but succeeded in pole-axing the animal. In doing this work Richardson gleaned much information about slaughterhouses, the Jewish methods of inspection of food, animal pathology and the different methods of killing animals—knowledge which he was to utilize in later years.

In 1855 he sent in his essay which, as already mentioned, was awarded the prize in 1856. In 1858 he published the essay with additional observations and experiments and with an appendix showing the bearings of the subject on practical medicine and pathology.

Richardson's main conclusions from his numerous experiments were: (a) that there is present in the body a compound of the ammonia type which is volatile, diffusible, absorbable by the blood, condensable by cold and pressure, decomposable and antiseptic; (b) that this compound governs animal combinations and disintegrations; (c) that the compound sometimes escapes from the blood, whereupon the blood coagulates in its absence; (d) that the compound sometimes accumulates in the blood, causing too marked a fluidity, and disease from that change.

He also found that blood held fluid by ammonia could be injected

into the veins of animals, and he employed it therefore for purposes of transfusion of blood in the human subject, although the method he employed was far from devoid of risk. Indeed, Richardson was a pioneer in blood transfusion which with a more enlightened physiology and improved technique has been the means of saving thousands of lives.

Richardson noted that ammonia would dissolve bloodclots or fibrinous deposits in the heart and blood-vessels. This led him to evolve the ammonia treatment of cases subject to thrombosis or embolism, although he disdained the use of these terms. He described this treatment as follows:

‘Using the ordinary aqueous solution (of ammonia) of pharmacopœial strength, I commenced by taking it myself in measured doses, and found that in water, ice-water, or milk it could safely be swallowed in five-minim doses, every two hours. Repeated many times in the dose named, it affected the blood, causing solution of the corpuscles, and acting after the manner of a solvent, without seeming to injure the digestive organs.’

Richardson collected a number of cases in which the ammonia treatment had apparently been successful; and after their publication many cases of cardiac and vascular derangement were sent to him and his private practice greatly increased. Modern biochemistry has shown that the conclusions which Richardson drew from his experiments were erroneous, and that it is impossible to saturate the blood by the administration of ammonia by the mouth: the ammonia when ingested passes to the liver, where it is converted into urea, very little ammonia actually passing into the circulating blood.

In the appendix to the essay on *Coagulation of the Blood* Richardson gave some interesting reports of his experiments in the direction of the production of artificial rheumatism and the typical state of the heart in that disease, by the introduction of lactic acid into animal bodies.

To the end of his life Richardson continued his experiments on blood. Even to-day the intricate mechanism underlying coagulation of the blood is not fully understood, and, although Morowitz’s theory is the most widely accepted explanation of the various stages in clot formation, there are other theories and modifications which enjoy some measure of support.

In his little laboratory at Mortlake, concurrently with his researches into coagulation of the blood, Richardson began studying the antiseptic

properties of gases and sent a paper on this subject to be read to the Medical Society of London, which was favourably reviewed by the *Lancet*. He prepared various gases and sealed up in them portions of dead animal tissue, ascertaining by comparison with other specimens exposed to air what effect the gases had in resisting putrefaction or other change. The gases investigated were hydrogen, arseniuretted hydrogen, chlorine, chloroform vapour, nitrogen, nitrogen impregnated with iodine vapour, nitrous acid gas, ammonia vapour, cyanogen, coal gas, carbonic oxide, carbonic acid, and all the hydrocarbons obtainable in the gaseous form.

Sometimes Richardson had as many as twenty specimens on the shelves, and his friend, Dr. Snow, repeatedly came to make his observations upon them. Richardson concluded that arseniuretted hydrogen was one of the best preservatives; he was also impressed with the effects of cyanogen but found dangers in working with so deadly a gas. He showed his preparations to the Medical Society of London; a specimen of a heart immersed in arseniuretted hydrogen retained its perfect appearance for two years, for instance, and he advocated ammonia vapour for keeping specimens removed at post-mortem examinations and for the preservation of anatomical dissections. He also recorded changes produced in animal tissues through the action of these gases. These later results were embodied in a further paper published in the Medical Society's transactions.

Another research pursued at Mortlake related to the effects caused by the smoke of the common puff-ball, *Lycoperdon giganteum*, known as the 'Devil's Snuff-box'. This fungus is eaten in the fresh state by the Italians as a food, *bovista*, and in the dry state was then used by surgeons for stopping hæmorrhage. Richardson had heard from his first master, Henry Hudson, that puff-ball smoke was largely used in the Midlands for putting hived bees into so deep a sleep that the hives could be robbed of honey and wax without disturbing the bees, and this Hudson believed had been going on for centuries. Richardson found that the smoke of the puff-ball produced unconsciousness in many lower animals and he performed operations on them under its influence. He read a paper, accompanied by experimental demonstrations, on the fumes of *Lycoperdon giganteum* to the Medical Society. Then the vapour was analysed by Richardson, Snow and Thornton Herapath of Bristol, and the narcotizing agent was found to be carbonic oxide.

This inquiry led Richardson to devise a means of putting domestic animals painlessly to death and to his invention of the lethal chamber. He set up a kennel in his garden, made it air-tight, put in the dog or cat whose painless death was desired, and then rapidly diffused through the kennel some purified puff-ball smoke that had passed through chloroform: the animal quickly fell asleep and died painlessly. From the middle of the year 1853 Richardson's neighbours were accustomed to bring to his 'lethal chamber' all their pets for whom they wished to secure a rapid and painless death.

In 1883 he set up a large 'lethal chamber' at the Dogs' Home, Battersea, where each year some thousands of dogs are brought for disposal. The humanitarian value of this invention has been recognized by all dog-lovers, and at a public meeting in 1884 Richardson received the special thanks of the committee of the Dogs' Home for his work, which has proved of the greatest value to the institution.

Richardson made numerous experiments on the effect of administering oxygen to animals, and expressed the opinion that oxygen entering the body in gaseous form carried with it vital force or energy, which in the course of distribution is liberated as motion and animates every bodily structure.

The subject of resuscitation occupied his attention for many years. He believed that when the body was not mechanically injured, structurally diseased or poisoned, resuscitation was a definite possibility although the subject might be apparently dead. The class of subjects in which this possibility existed, he said, was large: it included various forms of sudden death from anæsthetics; from choke-damp in mines; deaths from drowning and especially deaths in very cold water, as in immersion under ice; sudden deaths from shock or stunning and deaths from sudden and profuse loss of blood. The methods he employed in such cases, sometimes with partial or complete success, were saline transfusion into the veins or transfusion of ammoniated blood, combined with artificial respiration. He made a number of animal experiments before applying these methods to patients. The obstacles to success he encountered were obstruction to the circulation by coagulation of the blood, aggregation of the blood corpuscles in the minute vessels, the occurrence of *rigor mortis*, and the intervention of putrefactive changes commencing in the blood. He considered these difficulties might be surmounted eventually by the use of extreme cold, a conclusion which is somewhat paradoxical.

These views were expressed in a paper entitled 'The Restoration of Life after Certain Forms of Death', read before the Royal Society in 1865, and in 1885 the whole subject was reviewed in *The Asclepiad*, pages 171-187. In 1873 Richardson delivered the Croonian Lectures to the Royal Society on 'Muscular Irritability after Systemic Death', in which a number of his experiments on resuscitation are recorded. He also investigated for the first time in this country the action of certain drugs in connection with this subject: he reanimated by warmth six pigeons narcotized by injection of chloral and later witnessed the revival of life in three men who had taken chloral as a poison.

One day, after lecturing at the College of Dentists, Richardson met an Edinburgh dentist named Morrison. This man cherished a romantic attachment to the memory of Mary, Queen of Scots, and had in his possession her gloves and some of her trinkets which he showed to his friends. On this occasion, however, he presented Richardson with a small phial of nitrite of amyl, which he had obtained from Professor Guthrie, an eminent chemist. Richardson experimented with the drug on himself and a few chosen friends and on animals. He was the first to describe the action of amyl nitrite on the circulation and its relaxation of living muscles. At a meeting of the British Association for the Advancement of Science, held in Newcastle-on-Tyne in 1863, Richardson read before the Physiological Section the first paper on 'Amyl Nitrite' and illustrated its effects; Professor G. Rolleston was in the chair and in rather a sceptical humour. The lecturer explained that the nitrite excited the circulation, that it produced local results like those following the division of a sympathetic nerve, and that the blood vessels first dilated freely and then became congested. He poured amyl nitrite on a piece of filter paper, and explained that the vapour which diffused through the room would without affecting consciousness make every person's heart beat more quickly than was normal. Here Rolleston smiled incredulously and held out his hand for the paper. Despite a warning he inhaled the vapour, his face became congested, he felt the cardiac symptoms foretold and displayed obvious alarm. Richardson assured him there was no danger; and, when Rolleston got over his shock, he not only apologized but explained to the audience the folly of being too incredulous about what they heard from experimental observers.

At a subsequent meeting of the British Association held at Bath, Richardson pointed out that amyl nitrite was a potent anti-spasmodic

and enumerated the diseases that might be successfully treated by it, such as asthma, angina, colic and even spasmodic tetanus. At this Bath meeting Bishop Colenso, David Livingstone and Dr. Hughes Bennett were present. The committee of recommendation voted for several years a small sum of money to enable Richardson to continue his inquiries on the therapy of amyl nitrite, many of which are reported in the *Transactions* of the Association.

Richardson's important investigations on anæsthesia are dealt with in a separate chapter.

In the year 1818, Thenard, the French chemist, discovered hydrogen peroxide. As is well known, this compound (H_2O_2) in aqueous solution gives off oxygen freely on coming into contact with different animal, vegetable and mineral substances. However, it fell to Richardson in the early 'fifties to discover its therapeutic value. First he had to make hydrogen peroxide, following Thenard's account, for no chemists were able to supply him with a specimen. Considerable difficulty was experienced in getting a pure salt of baryta, but eventually this difficulty was overcome, and Richardson prepared a solution with a strength of ten volumes of oxygen. The dosage was determined by the investigator taking the fluid himself in measured quantities and estimated as one to four fluid drachms. He then found that hydrogen peroxide liberated oxygen in the blood and cleansed septic cavities by breaking up pus cells. He tried it in diabetes without success, but found it efficacious in whooping-cough, in pulmonary tuberculosis, in typhoid fever and above all in purulent diseases. He noted also its bleaching properties. The use of hydrogen peroxide became widespread, especially in surgery, and this was entirely due to Richardson's work. There were two interesting by-products of the investigation. One was the discovery of ozonic ether, a useful re-agent, the other arose from his observing from the accident of stirring the peroxide solution with feathers that they assumed a golden colour. He read a paper on the physiological properties of the peroxide to the Medical Society of London in 1858, and from this, as he says, 'arose the process that once made the hair of our ladies become conspicuously stained or dyed a golden hue'.

Skilful with his hands, Richardson devised much of the apparatus used in his experiments. He simplified the sphygmograph which had been invented by Professor Meyer, and also invented an instrument which he called 'sphygmophone' which caused the pulse to deliver

sounds through a telephone so that it could talk as well as write (*Vita Medica*, p. 420).

Richardson believed that he might have discovered X-rays before Roentgen, if he had continued his initial investigations directed towards making parts of the living body transparent. In 1868 he brought his results before the British Association at Norwich in a paper which was recorded in the Association's *Transactions*. At that meeting he demonstrated some curious experiments making sunlight go through the skin and softer structures, but not with the same readiness through bones. He could, however, make the bones visible and could render some so transparent that large words could be read through them. Afterwards he used this method for diagnosing and destroying tumours in soft transparent parts. In *Vita Medica* (p. 469) Richardson states that he was short-sighted in not pursuing his experiments further.

Throughout his active life Richardson investigated many other chemical, physical, physiological and therapeutic problems in his private laboratories. He studied mercaptan, 'sulphur alcohol', and emphasized its presence in the human intestine as a possible cause of melancholy, suicidal tendencies and mental derangement. He prepared methyl iodide and found that it might promote healing of ulcerated surfaces, even cancerous ulcers, and that it alleviated pain and hyperæsthesia; he experimented with amylene.

Interested in Professor Thomas Graham's work on crystalloids and colloids, Richardson, with his assistant, Dr. Frederick Versman, worked on colloids, osmosis and dialysis and lectured on his findings to the Hunterian Society at the London Institution. He showed that water could be removed from a colloid such as albumen, and that albumen could be left in the solid form and be also transparent. From this dehydrated albumen he constructed transparent lenses which possessed magnifying power. These experiments had a practical application: colloids in a fluid form were tested in order to see what substances they would absorb so as to produce remedial solutions, and these colloids became useful in medical practice. First styptic colloid was prepared which was satisfactory for stopping hæmorrhages, covering and healing wounds, and in covering inflamed surfaces like those of erysipelas; a modification of styptic colloid was the antiseptic iodized colloid. Richardson said he had had the pleasure of living to see few remedies in greater demand.

He studied potassium ethylate and utilized it in the removal of naevi and tumours; he advanced the art of embalming and introduced so many improvements with regard to the administration of embalming fluids by hypodermic injection that the necessity for post-mortem operation was obviated.

Even this lengthy catalogue does not nearly exhaust the list of his researches, which are recorded in numerous scientific and medical papers; the amount of research work Richardson did was enormous and ranged over a wide field. It would have amply sufficed for a whole-time laboratory worker and yet Richardson performed it while engaging in a busy consulting practice, hospital work, teaching and lectures, conducting medical journals and many other activities. Naturally, he received his due meed of recognition for his scientific labours.

By 1858 he was a corresponding Fellow of the Pathological Society of Montreal. In 1867 he was elected Fellow of the Royal Society, and in 1893 he was knighted 'in recognition of his eminent services to humanitarian causes'. He was president of many societies, including that of the Medical Society of London in 1868. The appreciation of his work in foreign countries was shown by his election as Fellow of the Philosophical Society of America, the Pathological Society of Berlin, the Imperial Academy of Sciences at Dresden, the Academy of Physiological Sciences at Turin, and the French and Italian Societies of Hygiene. In Wales he was made an Ovate of the Eisteddfod. The honour which he valued most was the presentation made to him in 1868 by Sir James Paget, on behalf of 600 scientific and medical men, of a microscope worth 100 guineas and a purse of 1,000 guineas in recognition of his services to medicine.

For a number of years Richardson was accustomed to entertain doctors either in his house or at the Regent Street Polytechnic, and to give them lectures and demonstrations on the experimental researches he was pursuing in his private laboratory, or discourses on other topics of the day. These were always interesting and attractive, so that his room was constantly filled to overflowing. He was a true follower of science, placing his knowledge and investigations at the service of his professional brethren and of mankind.

Chapter VII

RESEARCHES INTO ANÆSTHETICS

' So is pain cheered: death comforted;
The house of sorrow smiles to listen. Once again—
O thou: Orpheus and Heracles: the bard
And the deliverer: touch the stops again ! '

R. L. STEVENSON to W. E. Henley.

RICHARDSON, as we have seen, was deeply impressed as a medical student by the use of anæsthetics in surgery, the 'mastery of pain' as he termed it, and was one of the first to investigate anæsthetics and anæsthesia from the scientific aspect. In so doing he was greatly helped by his early friendship with John Snow, MD (1813–1858), equally distinguished as anæsthetist and epidemiologist. So close was this friendship that when Snow died Richardson edited his last work on *Chloroform and other Anæsthetics* and added a short biography to it. Snow's brothers and sisters invited Richardson to take Snow's anæsthetic practice, an offer which he declined: he was a physician and had no wish to become a specialist anæsthetist, in spite of his deep interest in the subject. In the last year of his life he said: 'For a good half-century it has never gone out of my mind or out of my work.' Richardson recorded his attempts to discover the action of anæsthetics and their composition in a paper entitled 'A Synopsis of Anæsthetics', published in the *Asclepiad*, Vol. II (1885), pp. 257–277.

Snow at first administered ether, but afterwards found chloroform a more convenient anæsthetic. Richardson and he collected and tested many substances with narcotic properties. Snow worked with ethene chloride—ethylene and amylene (C_5H_{10}), and for a while decided that amylene was best. Unfortunately, two deaths occurred from its use, so he gave it up and went back to chloroform. Richardson made a tour of the English hospitals and concluded that the average of deaths from chloroform was one in 2,500.

In 1863 the Royal Medical and Chirurgical Society appointed a committee to devise means for obviating deaths from chloroform. Richardson had already come to the front rank of practising anæsthetists

and with Charles Kidd was called in in an advisory capacity. The Committee reported in 1864 and received valuable assistance from Richardson's experience and investigations.

Altogether, Richardson as he states in *Vita Medica* (p. 299), introduced no fewer than fourteen anæsthetic substances, of which two deserve special mention. The first of these was bichloride of methylene, or methylene, which was given the formula CH_2Cl_2 , but in practice was generally found to consist of a mechanical mixture of chloroform and methyl alcohol. Richardson, in making an intensive trial of the hydrocarbons, came to the conclusion that if he could produce a liquid like to chloroform with one equivalent of chlorine less than in chloroform and one of hydrogen more, he would have a volatile liquid and a quicker anæsthetic, and there would be less risk to the patient. In 1867 he produced bichloride of methylene, and, after testing the anæsthetic on animals and on himself, administered it to a woman patient on whom Sir Spencer Wells was about to operate for ovariectomy. Sir Spencer was so pleased with the result that he used bichloride of methylene successfully in cases of abdominal surgery for over twenty years. It was usually given by Junker's inhaler, and was popular both in England and on the Continent from 1870 to 1890. The anæsthesia produced is comparatively superficial, which renders it unsuitable for many modern surgical operations. The other anæsthetic to be noted was methylic or methylene ether, a mixture of dichloromethane and diethyl ether, which Richardson found to be an anæsthetic in 1867 and introduced into his practice in 1872. Lawson Tait used methylene ether largely in his gynæcological practice.

Richardson's observations ranged over the whole field of anæsthesia and, at one time, he appears to have been in frequent request as an expert anæsthetist.

After Faure in 1859 had adopted the practice of administering chloroform through one nostril, Richardson utilized the method for operations in and about the mouth. His first case was one in which Spencer Wells removed half the lower jaw. His enthusiasm for Faure's technique disappeared after one or two further cases in which 'great danger had arisen therefrom'.

Richardson was also a pioneer in the invention of anæsthetic apparatus. While at Barrowden he invented a mouthpiece for ether administration known as the double-valved inhaler, which was improved on by Snow and Dr. Francis Sibson, and in 1872 devised a leather cone for

giving methylene ether. Richardson held that the ideal anæsthetic should be quite free from chlorine, should be devoid of risk to the patient and should abolish sensibility while consciousness was retained. He believed that methylene ether, though difficult to administer, to some extent attained this objective.

In the quest for the ideal anæsthetic Richardson turned his attention to local anæsthesia. He noted that extreme cold—for example, the application of ice and salt—had a benumbing influence. In the first place he tested the effect of carbonic acid snow: this had a numbing effect, but sometimes destroyed the tissues. With his mind occupied with the problem, after working many hours in his laboratory, he went one night with his wife to a ball. A mirthful young lady, with whom he was about to dance, let a little *eau de cologne* fall on his forehead by blowing it through a small tube, and her jest rendered a service to science; the cold produced was intense and the skin on which the liquid had fallen was benumbed. ‘Thank you,’ said Richardson, for in this he saw the solution of his problem. He needed a volatile fluid which would evaporate from the skin and leave the part numb. In 1866 he devised a spray, worked by a hand bellows, which blew a finely atomized cloud of sulphuric ether on to the patient’s skin, where it immediately vaporized, and in so doing refrigerated the superficial tissues sufficiently for all sorts of surgical operations to be done—the extraction of teeth, treatment of caries of bone, excision of tumours, amputation of the breast and even one case of cæsarean section, performed by Dr. Greenhalgh. Richardson also tried amylene and rhigolene (a petroleum distillate) in the spray, but found ether the most satisfactory. Dr. Barbara Duncum notes that this spray achieved considerable popularity in France,¹ and the writer saw it extensively used in London in minor surgery some thirty-five years ago.

In the pre-anæsthetic days the most successful surgeons were the swiftest operators. William Cheselden was so good in this respect that one of his patients addressed an ode to him in which the lines occur:

“So swift thy hand, I could not feel
The progress of the cutting steel.”

Liston, Surgeon to University College Hospital, could amputate a

¹ Duncum, B.: *The Development of Inhalation Anæsthesia*, Oxford University Press 1947, p. 39.

thigh in twenty-five seconds, thus greatly minimizing the patient's suffering. Richardson invented a painless cutting knife with a revolving blade of fine sharp steel and at a lecture at York cut through his own skin without pain as he stood at the lecture table.

Joseph Priestley obtained nitrous oxide gas from nitric oxide in 1772 and in 1799 Sir Humphry Davy discovered its analgesic properties and suggested that it might be used for surgical operations 'in which no great effusion of blood takes place'. Nobody adopted this suggestion until Horace Wells, an American dentist, between December 1844 and February 1845 successfully anæsthetized with nitrous oxide gas a number of patients for dental extraction; but a demonstration which he gave at the Massachusetts General Hospital failed and his method was discredited. The gas as an anæsthetic was reintroduced into American dental practice by G. Q. Colton in 1862. Rymer tried it in London at the National Dental Hospital for a short time. In 1867 Dr. T. W. Evans, an American dentist, practising in Paris and afterwards famous for arranging the Empress Eugénie's escape from France in 1870, took up the subject. He had learned of the method from Colton, became enthusiastic in its practice, and in 1868 gave a series of demonstrations of nitrous-oxide anæsthesia at the National Dental Hospital, Moorfields Hospital and elsewhere.

Richardson was sceptical at first; and in a discussion at the Medical Society of London, of which he was then President, said:

'The gas had been treated as an unknown, wonderful and perfectly harmless agent; whereas, in simple fact, it was one of the best known, least wonderful, and most dangerous of all substances that had been applied for the production of general anæsthesia. No substance had been physiologically studied with greater scientific zeal or more rigid accuracy; and no substance had been more deservedly given up as unfit and unsafe for use.'

He then advanced the view that nitrous oxide gas was not a true anæsthetic but an asphyxiating agent. Of this action he gave two alternative explanations, 'It may be that the nitrous oxide quickens the oxidation of the blood, and so causes accumulation of carbonic acid in the blood; or it may be—and this is more probable—that it acts by checking the outward diffusion of carbonic acid.' This theory gained many adherents, because, as Dr. Barbara Duncum remarks,¹ partly it provided a ready explanation of the cyanosis seen in patients during

¹ Duncum, B.: *Ibid*, 282.

inhalation of the gas, and partly, as the *Lancet* commented, Richardson's authority on such a point cannot be questioned'.

Subsequently, J. Burdon Sanderson and George Johnson made experiments at the Middlesex Hospital which demonstrated that nitrogen produced anæsthesia by means of apnœa; nitrous oxide, independently of apnœa, by its direct action on the nervous system. They defined apnœa as 'privation of oxygen'. Richardson's theory was therefore disproved, and the widespread use of nitrous oxide gas in dental and minor operations soon led him to modify his opinion that the gas was a dangerous anæsthetic.

Richardson also experimented in producing local analgesia by means of electricity. He passed through parts of the body electrical vibrations at such a pace as to produce distinct obliteration of pain. He endeavoured to make living parts dead to pain by passing through them lethal substances by means of electricity, and gave to the procedure the name of 'Voltaic narcotism'. The parts to be rendered insensible were covered with narcotic fluids, such as carbolic acid, aconite or aconite and chloroform; 'over this narcotic was laid a metal plate connected with one pole, the anode of the battery, and then the current was allowed to pass, while the end of the other pole was fixed to a different portion of the body.' By this method Richardson found that pain was abolished and that operations could be painlessly performed, but destruction of tissue sometimes followed, and the physiologist, Dr. Waller of Birmingham, and others considered that only absorption of the narcotic fluid took place. The method was consequently discarded. Richardson made certain experiments into a proposition which came from America that electricity by the Faradic current might be usefully employed as an analgesic, especially for the extraction of teeth. He was always ready to experiment on himself and asked Dr. Julius Althaus to pass a strong Faradic current through his ulnar nerve for a long period. After an hour's application the arm was benumbed. Richardson, with unconscious humour, adds: 'The process was, however, too long for practical work in which cutting operations had to be performed.'

Experiments were made at the College of Dentists on the use of an electric current in dentistry, and a Committee of Inquiry was formed over which Richardson presided. It came to the conclusion that the method was only one of diversion, that is, the patient's attention was focused on the painful sensation of the electric current to the exclusion of the pain of dental extraction. The method had no real practical utility.

Incidentally, the work of this Committee led to Richardson's acquaintance with Dr. John Elliotson, whose work on mesmerism had led earlier to his removal from the medical staff of University College Hospital. Thackeray dedicated *Pendennis* to him and his studies in mesmerism were extolled by Charles Dickens, himself an amateur hypnotist. Elliotson, a kindly, wise physician, was treated harshly by his medical brethren, though the College of Physicians made amends by afterwards selecting him as Harveian Orator. He and Richardson had discussions on the power of mesmerism to remove pain, for no methods of anæsthesia escaped the latter's inquiring mind.

Another method of inducing local anæsthesia which Richardson studied consisted in the abstraction of blood from the part to be operated on. He experimented with a metallic boot larger than the leg which was inserted in it; at the upper end there was an indiarubber fillet which grasped the limb. This boot, fixed in its place, was exhausted of air, and acting as an enormous cupping-glass drew the blood of the body into the structure enclosed, and so was presumed to cup the whole body, relieving pressure from the lungs, the brain and other parts of the trunk when they were inflamed or congested. This boot had been invented by a Continental physician named Dr. Junot, and Richardson modified it by allowing the toes to project through an indiarubber opening. He put the boot on his own leg, exhausted the air, and found the toes were emptied of blood and devoid of sensation. In his first experiment he let the air into the boot too rapidly, with the result that the blood flowed so quickly into the toes that the pain was intense and Richardson thought he was going to die from it. Subsequently, Sir Spencer Wells removed an ingrowing toenail from a patient fitted with this boot, the patient experiencing no pain whatsoever, and the air being readmitted slowly. The apparatus was clumsy, its application was very limited and its employment demanded unusual care: it was not adopted in practice.

In 1869 considerable interest was aroused by Oscar Liebreich's use, in Berlin, of chloral hydrate as an hypnotic. It was known that when treated *in vitro* with an alkali, chloral decomposed, forming chloroform. Liebreich suggested that a similar action took place through the action of alkali in the blood when chloral hydrate was introduced into a living body.

Richardson, at the Exeter meeting of the British Association in 1869, was asked by the President of the Physiological Association to investigate

Liebreich's findings. A series of experiments on animals and birds with chloral hydrate was immediately conducted by Richardson in the laboratories of the Devon and Exeter Hospital. His report, published in the *British Medical Journal* (1869, 2, 243) confirmed Liebreich's contention that chloral was decomposed in the living body. 'It gives off chloroform, and it forms a formiate of soda with the blood. The chloroform thus liberated produces sleep which may be made to extend over four or even five hours; but vomiting is frequently produced previously to sleep, and there is only a brief period of insensibility, the body, being, if anything, hypersensitive to touch and pain, even during stupor.'

Richardson pointed out that death was very liable to be induced by slight excess of the quantity administered. He did not consider that chloral hydrate would practically supersede opium, chloroform and similar narcotizing agents now in medical use; on the contrary he believed that the decomposition of blood which it induces by the formation of formiate of soda is detrimental.

Two months later, in a lecture on the subject of chloral (*Brit. Med. J.*: 1869, 2, 400), Richardson referred to his further experiments on animals, which showed that chloral caused a great decrease of animal temperature and that the inhalation of an ethereal solution of chloral produced a deep and prolonged narcotic state. 'During a portion of the period of narcotism,' said Richardson, 'there may be complete anæsthesia with absence of reflex actions; a condition, in short, in which every kind of operation fails to call forth consciousness. Therapeutically, the agent is to be accepted as the rival of opium. It promises to be useful in cases where there are increment of animal heat, muscular spasm and pain. It will be worthy of extensive trial, in tetanus especially. The dose of hydrate of chloral for a child is seven grains; for an adult, the dose may be twenty grains.' This was a careful piece of physiological and pharmacological research into a new drug, and has been described at some length as characteristic of Richardson's scientific observations.

To the end of his life Richardson sought the perfect anæsthetic which would be devoid of all risk to the patient. As we have observed, in this quest he discovered fourteen anæsthetic substances and tried numerous methods of producing local and general anæsthesia. In association with John Snow he made anæsthetics a medical science and rescued it from mere empiricism, and it is due to their enlightened labours that anæsthetics early became a speciality in this country and that anæsthesia in Great Britain has achieved its high reputation.

Chapter VIII

THE PREVENTION OF DISEASE

'The great work of sanitary reform has been perhaps the noblest legislative achievement of our age, and if measured by the suffering it has diminished has probably done far more for the real happiness of mankind than all the many questions that make and unmake Ministries.'

W. E. H. LECKY

THE ACCESSION of Queen Victoria in 1837 saw a stirring of the national conscience in measures for the prevention and control of disease. The Industrial Revolution had come bringing in its train urbanization, overcrowding, insanitary dwellings, squalor and pestilence. The medical inquiries of Southwood Smith, Neil Arnott and James Phillips Kay had inspired two great leaders of social reform—Edwin Chadwick and Lord Shaftesbury—and Edwin Chadwick's famous report of 1842 led to the first Public Health Act of 1848 and the establishment of the General Board of Health. Thereby the State assumed direct responsibility for the national health, not only, as previously, in times of plague or pestilence, but in perpetuity.

One of Chadwick's many helpful suggestions was the appointment of Dr. William Farr as 'Compiler of Statistics' under the new Registrar-General. His enlightened statistical reports on the fatality and incidence of diseases greatly helped advances in preventive medicine.

In 1850 the Epidemiological Society of London was founded by Mr. Tucker with the object of studying and preventing epidemic diseases. Richardson became one of its earliest members. His interest in public health was strengthened by the invasion of Asiatic cholera which occurred at this time, and by his friendship with John Snow, who discovered that cholera was a water-borne disease. Snow, as is well known, traced out the difference in respect to prevalence of the infection in districts with different water supplies, comparing Southwark and Vauxhall specially; he quelled the epidemic caused by the water supplied by the Broad Street pump by advising the local vestry to remove the pump handle, and created widespread interest by

his demonstrations and references. It began to be realized that epidemics were often due to influences begotten by human ignorance, and were preventable by human intelligence.

Cholera broke out in Mortlake and the surrounding district, where Richardson was then practising. The local vestry appointed a committee of inquiry, the members of which were Vice-Admiral Lord William Fitzroy, Professor Sir Richard Owen, FRS, and the young Dr. Benjamin Ward Richardson. It is probable that the self-effacing Dr. Willis recommended his able assistant to the vestry, and it says much for Richardson's personality and knowledge that he was put on this committee. Lord William appears to have been rather a figure-head, but Sir Richard Owen, the great comparative anatomist, who had just come to reside at the lodge in Richmond Park, ably supported Richardson in the sanitary measures he advocated. Richardson said: 'There was nothing connected with the cholera that we in our district did not, as a committee, investigate, as it were, within reach. By our directions as to isolation and perfect cleanliness there can be no hesitation in saying that we cut short the epidemic.' (*Vita Medica*, p. 228.) In the treatment of patients suffering from cholera, Richardson employed saline transfusion with some success.

Nor did the young doctor's zeal for the study of cholera rest with his local triumph: he founded the East Surrey Cholera Society, and with the help of Dr. Alfred Carpenter of Croydon secured a considerable number of Surrey medical practitioners as members. Dr. Willis was elected President, and the meetings were held in the board-room of the Hospital for Children at the foot of Waterloo Bridge on the Surrey side. In an address to the Society, Richardson compared the epidemic outbreak of any disease to the appearance of a comet—it ought to be followed in its course and all its history noted as it passed the observers, a method which has revealed many epidemiological truths.

Richardson met Edwin Chadwick in 1853, in the early days of the Epidemiological Society, and an unbroken and unceasing friendship resulted. The young doctor was soon strongly imbued with Chadwick's beliefs that environmental hygiene would abolish all diseases. Richardson said: 'We suffer from disease through ignorance; we escape through knowledge.' He determined, therefore, to publish and circulate a journal devoted to health which should spread knowledge and sanitary principles far and wide,

In 1855 he convened a meeting of medical friends at the house of Dr. Babington in Hanover Square, and proposed the plan of the *Journal of Public Health and Sanitary Review*, a title reversed a few months later at the suggestion of Dr. John Chapman into the *Sanitary Review and Journal of Public Health*. It published the transactions of the Epidemiological Society on condition that every Fellow of the Society subscribed to the new journal. There was a drawing of Hygeia on the cover for which Richardson invented the motto—'National Health is National Wealth'—a sentence which has become proverbial. The journal met with a favourable reception from the medical profession and the public.

In the first volume Richardson suggested that all diseases in the kingdom should be registered; and invited medical men in different parts of the country to fill in a table showing the latitude and longitude of each centre, the dates of observation, the human, animal and vegetable diseases prevailing, the states of the weather and points connected with the condition of the inhabitants of the district.

The response to this invitation proved so active that the task of communicating with so many correspondents was more than Richardson could manage, and the costs of the inquiry were beyond his means. In 1857 he sought an interview with Sir Benjamin Hall (afterwards Lord Llanover), then President of the General Board of Health, with a view to the Board's continuing the scheme. Sir Benjamin expressed his admiration, carefully examined the reports and consulted his medical staff. The result may be told in Richardson's own words: 'At last, however, he was compelled to tell me that he could not entertain the project as a Government scheme; there were neither the funds for it nor the organization, nor did he see that it would be possible for one like myself, however filled with energy and enthusiasm, and however usefully educated and actuated, to carry on such a national undertaking. The country, not ripe for the design, would require to live another century before the development of sanitary registration, and it must be given up as a plan that would not grow if forced unduly.'

Sir Benjamin Hall was somewhat pessimistic in his outlook, for notification of infectious diseases came in considerably earlier than the time specified. It is true, however, that only within the past few years has the Ministry of Health investigated the incidence and associated features of diseases in different parts of the country, while a similar

intensified investigation is being pursued by the Institute of Social Medicine at Oxford.

Richardson made an interesting note on the reappearance of diphtheria in England, which was then so rare a disease here that it was unrecognized by most practitioners. Dr. Reid and Dr. Haffenden, two of his recorders at Canterbury, noted that in the village of Ash there broke out a fatal malady, prevalent amongst children, known as the 'Ash Fever'. This proved to be diphtheria, which from Ash extended all over the kingdom with the loss of thousands of lives that might have been saved, if it had then been possible to check the spread of the disease.

Many subjects were discussed in the *Sanitary Review*; for example, the water supply of London; the 'Health of the English Soldier', a paper by Richardson, which excited the admiration of the Prince Consort; vital statistics were unfolded and examined, though according to Newsholme not always accurately; the homes of the population were described, and numerous improvements in the home, the hospital, the workhouse and other public institutions suggested and often adopted by the authorities; the sanitation lessons of the Crimean War were recorded; and in the *Transactions* of the Epidemiological Society Mr. Keith Johnson enumerated and classified the diseases of the world, as then known.

In the introduction to the first volume Richardson emphasized the importance of making preventive medicine a branch of medical education, and advocated the appointment of a professor of hygiene in every medical school. He urged that in all final examinations for medical licences and degrees a knowledge of hygiene should be required. In the second volume Richardson's article on 'The Hygienic Treatment of Pulmonary Consumption' has already been mentioned (Chap. V). Other articles in the Journal related to the sanitary and social conditions of the English poor (I, 8, 217); the sanitary regulations of ancient Rome (I, 141, 261, 379); cholera and the water-supply in South London (II, 239); the preservation of food in ancient and modern times (II, 323); the sweating sickness of England (III, 105), the hygiene of the Turkish soldier (III, 141, 265) and prostitution (III, 327).

Owing to the pressure of other work, Richardson had to end the journal after the appearance of the fourth volume in 1859. Subsequently, however, he founded the *Social Science Review and Journal of the Sciences*, the first volume of which appeared in 1864; the fifth and last in which the title was changed to *Social Science Review: Sanitary*

Review and Journal of the Sciences, was published in 1866, the claims of practice again making it impossible for him to continue the work.

As examples of interesting articles in Richardson's second health journal the following may be cited: diseases of overworked men (I, 97, 194, 289, 385, 481); capital punishment, of which Richardson was a strong opponent (I, 150); prison discipline (II, 1); Turkish physic and physicians (III, 242); 'the new pestilence, epidemic meningitis or spotted fever' (III, 385); corporal punishment in England (IV, 229); and smoke and its prevention (V, 385).

After discontinuing his own journal, Richardson continued to pursue his crusade in the cause of national health by means of articles in other journals, both medical and lay, by lectures and addresses to various scientific societies and to popular audiences in Great Britain, and by writing books.

During the years 1864, 1865, and 1866 he published in *The Medical Times and Gazette* an interesting series of papers entitled 'The Medical History of England', the idea of which had been suggested to him by Mr. John Churchill, the publisher of that journal. The series dealt in particular with Norwich, Lynn, Stafford, Wolverhampton, the Potteries, Brighton, Lincoln, Cambridge, Reading, Bath, Oxford, Leamington and Nottingham. The inquiry lasted many months and the papers constituted a medical and public-health survey of conditions in these places. It was an arduous task. Practice was ever calling Richardson to London and in his journeys he had to travel by night; he often had to write his reports in the train, to endure much broken rest, and to work like a slave at all times, although he received every assistance and much hospitality from the local medical practitioners. The papers when published contained detailed information regarding hospitals in the towns visited, the sanitary condition of the towns and short biographical notices of the eminent medical men connected with them.

In Richardson's work, *The Asclepiad*, there are numerous articles dealing with various aspects of public health, including the treatment of cholera in its sanitary, dietetic and curative aspects (II, 8), an historical sketch of medicine under Queen Victoria, which contains an epitome of the advances in preventive as well as curative medicine (IV, 201), and the construction of winter palaces of health and camps of health (IV, 120). In this last-mentioned paper Richardson advocated the use of the old British and Roman camps as health resorts for convalescents.

He wrote short biographies of such public-health reformers as John Howard, Benjamin Rush, John Snow, Thomas Wakley and W. A. Greenhill, but his most important biographical study of this kind was his review of the work of Edwin Chadwick, which he published in two volumes in 1887, during Chadwick's lifetime, under the title of *The Health of Nations*. The first volume opens with a short biography of Chadwick; next follows an introduction in which the work of Chadwick as a social reformer and pioneer in the science of sanitation is described; the rest of the volume is devoted to a study of Chadwick's essays in politics and economics. The second volume contains extracts from Chadwick's writings on sanitation and the prevention of disease, accompanied by editorial notes. Chadwick, as Richardson observed, was not a great writer: 'he is plain and yet difficult: diffuse here, concentrate there: and although he never writes without communicating some new thought or practical lesson, we doubt whether his writings as literary efforts have ever directly touched the mind of the nation.' Again much of this reformer's writing, especially his more important early work, lay concealed in blue-books and official records. Richardson, therefore, rendered great service to Chadwick's reputation and to the history of social reform in England by presenting the pith of Chadwick's writings, framed in an able commentary, in readable form. Richardson was also executor with James Heywood of Chadwick's will, and one of the first five trustees of the Chadwick Trust, founded in 1895.

Societies for promoting and studying public health were always sure of Richardson's active support and interest. First, as already mentioned, he was one of the original members of the Epidemiological Society of London, founded in 1850, of which he subsequently became a vice-president. He was never actually President of this Society, but he gave the opening address at the thirteenth session of the Society on 2nd November, 1863, during Babington's presidency, on 'The Present Position and Prospects of Epidemiological Science' (*Trans. Epidem. Soc.: Lond.* 1863-64, II, 119). He also contributed papers to the Society on scarlet fever in 1853 and 1863 (*ibid.* I, 188), 'The Theory of Zymosis', in 1859 (*ibid.* I, 20), and 'The Theory and Mode of Propagation of Cholera' (*ibid.* II, 424).

With Chadwick and his school Richardson regarded the epidemic of zymotic diseases 'as the Nemesis of hygienic shortcomings, the evil fruitage of the transgressions of sanitary law and spoke of them as

“filth diseases”.’ Imperfect sanitary conditions if not the parents, were, at any rate, the nurses of fever, and in extreme cases he believed that fevers might be bred of filth.

He never believed in the germ theory of disease and consistently opposed Pasteur’s views and discoveries even in the light of irrefutable evidence. The soil was to him more pathogenic than the seed and he inveighed against inoculation and ‘spick-and-span new diseases in the human, equine, ovine, and perhaps feline species’. He thought that these vaunted bacteria might be derived from the ‘animal tissues themselves, undergoing some modifications of disease’. In *Vita Medica* he writes: ‘I was obliged to learn that, in truth, antiseptic agents were not wanted at all, and that absolute cleanliness was alone sufficient as a remedy, and marched side by side with advancing sanitation, which is the mode of cure which stands above all others.’

Richardson’s theory of zymosis was an hypothesis of glandular contagion. He assumed that all the specific fevers were the outcome of vitiated glandular functions, a ‘septine’ being secreted. He drew an analogy between the normal differences of function of normal glands and the characteristic differences of the specific fevers; snake poison was regarded by Richardson as the type of the poisons producing specific fevers. This analogy was attacked by Newsholme as early as 1878, when he was a medical student at St. Thomas’s Hospital: he pointed out that snake poison is dangerous only in proportion to dosage and does not multiply in the victim’s system.

As the years went on, Richardson no doubt abandoned his theory of zymosis, but he remained curiously blind to the great advances made in bacteriology. In this he was a striking contrast to Sir John Simon, who was ever receptive to modern scientific progress. Simon observed that Chadwick and Richardson and the sanitarians ‘in their perfectly proper zeal against filth, immensely underrated, not to say ignored, the independent importance of morbid contagia’.

We may now return to further consideration of Richardson’s association with public health societies. In the early ’sixties women as well as men were taking an active part in health propaganda, and the Ladies’ Sanitary Association had been formed to introduce education in sanitation among the masses. For this purpose a school was formed with a lecture faculty of which Richardson was Chairman. There were lectures by eminent men on anatomy and physiology, chemistry and natural history, Richardson himself lecturing on public health. One

of his lectures on 'Work and Overwork', delivered in 1863, excited much popular interest.

Another big society, founded in the 'sixties, was called the Social Science Association, and had Lord Brougham as its first President; it aimed at promoting law, education and health, and held meetings in large towns. In 1875 it met at Brighton with Richardson as President of the Health Section. Richardson describes how he went to Brighton with two addresses in his pocket, one on *The Statistics of Death Rates*, the other on a model city or what a city ought to be if the science of sanitation was ever to be advanced—a city to be called Hygeia or Hygiopolis. He was then staying at Littlehampton with his wife and family and he had read both the addresses to his little daughter, Stella. She found the statistical paper dull, but the model city excited her interest. Father and child modelled the city on the sands and named the streets and buildings. The wind often blew the model away at night and it had to be renewed in the morning: 'The winds blew it away, but they blew it all over the world,' said a friendly American critic. At the last moment Richardson decided to give the address on *Hygeia: A City of Health*. It had a success not confined to the Brighton meeting: it was quoted and commended in leading articles in newspapers at home and abroad and praised by Chadwick, while one old gentleman declared that as soon as he knew where the city was he would go to it.

Hygeia was largely inspired by Sir Thomas More's account of the city in *Utopia*; in several respects More's description is more comprehensive and on a higher administrative plane than is Richardson's account. The latter pinned his medical faith on cleanliness, free ventilation, pure water-supply, no underground dwellings, sunshine and fresh air, total abstinence and good hospitals. He held that by these means the death-rate in his model city would be reduced to eight per thousand in the first generation and five per thousand in the succeeding one.

In the early 'fifties Richardson had expressed the view at a scientific society meeting that public-health measures would reduce the general death-rate, which at that time was 22-27 per 1,000, to 15, perhaps to 12 and even to 10, but this forecast was criticized as being far too optimistic. Richardson did not see it fulfilled in his lifetime, but the mortality per 1,000 for England and Wales was 15 in 1905, 12 in 1912, and 10 in 1923. In 1945 it was 11.4.

Richardson became the first chairman of the Sanitary Institute (now the Royal Sanitary Institute) and took a share in the setting-up of examinations, conducted by the Institute, for sanitary inspectors and in the yearly holding of Sanitary Congresses. The first meeting, over which he presided, was held at Leamington in 1877; he was also president of the Congress held at Croydon in 1879. At the Leamington Congress there was an exhibit from Coventry of a small set of machines for riding out of doors on two wheels—bicycles—with the first tricycle, a machine worked then by the common lever. Richardson sprang to the saddle and rode this tricycle on a main road in the presence of a cheering crowd: from thenceforward he was an ardent cyclist. He used the tricycle and bicycle—the pneumatic tyres was not then invented—in his antiquarian expeditions, advocated cycling as an important adjunct to the preservation of health, and was a president of the *Tricycle Union*, and of the Society of Cyclists for ten years. He presided over local health congresses at Brighton and Hastings. At the Brighton meeting in 1881, he attended a breakfast at which ham was a dish. In his own slice he discovered *trichinae*, and at once warned those present. Some of them had already finished their ham, and there was some alarm, but as it was well cooked no harm resulted.

The Hastings and St. Leonards-on-Sea Health Congress was held in 1889, and Richardson, besides a presidential address, read a paper on 'Purification of Air by Ozone', and gave an evening lecture to the working classes on 'The Health of the Body'. Amongst others who read papers were the veteran Sir Edwin Chadwick, verging upon his ninetieth year, Dr. W. A. Greenhill, and Sir F. Seymour Haden, surgeon and artist.

Richardson's presidential address dealt with 'The Health of the Mind'. He pointed out that mental health not less than bodily health belongs to the care of the true and earnest student of sanitation; that the empires of mind and body were independent, as well as dependent the one on the other; that an insanitary and sordid environment, evil and impure conversation affected the health of the mind; that mental as well as physical contagion existed, and in support of this he cited the dancing mania of the fourteenth century, a Lancashire outbreak of a convulsive type arising from fear, and suicide, which was sometimes of so contagious a character that during the reign of the first Napoleon the sentry-boxes of a station had to be burned because one soldier, having set the example of hanging himself in a sentry-box, was

followed by a large number more. During epidemics, such as cholera, he had noticed that fear of the disease might mimic the actual symptoms rendering diagnosis between the imitative and the actual disease a difficult matter.

He discussed mental shock and said that its effects in causing permanent bad health of mind are most easily inflicted in the period of infancy and early life, thus anticipating much of the teaching of medical psychology to-day. He divided the life of man into the animal life, the emotional life and the intellectual life; noted how these mental lives existed in every man, but in different degrees and in different combinations; and indicated how through lack of psychological knowledge rigid parental or educational control might cause perversions or disorders of conduct in young lives through unsympathetic handling. He referred to mental overcharge both in education and in ways of life as responsible for much mental ill-health; and, finally, he urged that Hastings—St. Leonards-on-Sea should hold and keep the lead not only in the matter of bodily, but also of mental salubrity.

Now remembering the date of this address (1889) it is a remarkable one. Much of its teaching, inspired by modern psychiatrists, is now familiar to the general public. When it was delivered the concept of mental hygiene was caviare to the general public, for the views of Plato, Aristotle, Democritus and other earlier philosophers were studied only in academic groves: this address is one more revelation of Richardson's versatile and far-seeing mind. Had he pursued the subject he might have founded a great school of British medical psychology based on true scientific foundations. He sketched the problem, illuminated it with light and colour and then, as with tuberculosis and other subjects, turned to some fresh field of inquiry. As a result, the subject of mental hygiene then languished in this country, and when revived in modern times Richardson's early sketch was forgotten.

At this Hastings congress Sir Arthur Newsholme, then medical officer-of-health of Brighton, first met Richardson, who was then in his sixty-first year. He found him a delightful companion; and he always quoted Richardson's appreciation of his book, *The Elements of Vital Statistics*, as an instance of an elder man's encouragement of and sympathy with a younger generation. Richardson first recommended to a medical officer of health the appointment of a sanitary inspector. These inspectors increased in number and formed themselves into societies, with, ultimately, a central London society, of which Sir

Edwin Chadwick became the first president. When he died Richardson succeeded him in the office.

It was at the Congress of the Sanitary Institute held at Stafford in 1878 that Richardson first made the proposal—published in the following year in book form with other essays—for the establishment of a Ministry of Health, which was not realized until twenty-three years after his death. He renewed the subject at a Congress of the Association of Sanitary Inspectors held at Leeds in 1896, a few months before his death, when owing to his illness the paper was read by Mr. T. Pridgen Teale (*Sanitary Record*, 1896, xviii, 181). He dealt with the same subject in *Vita Medica*, p. 259, and in *The Field of Disease*, p. 689, where he describes his scheme as follows:

‘For the complete carrying out of the Central Health Department of the Country, in all its details, one further reform is required, and that is a Ministry of Health which shall in the various departments connected with it, under the control and direction of a Minister of Health, collate all the registrable facts bearing on disease and mortality; all the facts relating to meteorology or climate; all the details relating to the laws connected with local self-government, and everything which publicly is included under the head of State Medical Jurisprudence. Such a Ministry would not only be of the greatest advantage to the country, but thoroughly organized and efficiently served, would be sure to win the confidence and respect of the other countries, and would serve as a model for countries less advanced than our own in the science and art of sanitation.’

Richardson was not the originator of the idea of a Ministry of Health. In 1820 Jeremy Bentham in his *Constitutional Code* (Vol. 8 of *Works*) had proposed the appointment of a Ministry of Health (including the administration of treatment and preventative services). In 1854 Sir John Simon prefaced a volume of his Reports to the City of London with the suggestion that there should be a ‘Minister of Public Health’ presiding over a department ‘to care for the physical necessities of human life’, and developed the proposal later in his *English Sanitary Institutions*. The Report of the Royal Sanitary Commission of 1869 recommended a similar proposal. However, Richardson deserves the credit of fully appreciating the need for a Ministry of Health, and in this he was ahead of his day and generation.

Richardson’s work concerning the humane slaughtering of animals is one of his finest achievements in public health. In 1869 he

experimented with electrocution, using the powerful induction coil at the Old Regent Street Polytechnic, and found it effective for rabbits and birds, but unsatisfactory in the case of sheep owing to checking the blood flow, return of consciousness and risk to the operator. He then tried narcotic vapour in the form of bichloride of methylene mixed with coal gas or carbon bisulphide and obtained satisfactory results in the case of fowls. In 1871 he read a paper before the Medical Society of London on 'A preliminary research to discover a practical method of killing animals intended for human consumption without the infliction of pain'. His aims were: (1) simplicity of method; (2) certainty and rapidity; (3) the abolition of consciousness without interference with blood-flow; and (4) the absence of any deterioration in the quality of the flesh.

In 1882 he founded the Model Abattoir Society, of which he was the first president, retaining the office until his death. The Society's objects were, in his own words, 'to encourage every town to build its own abattoir, to open the eyes of the public to every method of slaughter and preparation of animals for food; to encourage every improvement that can be suggested; to bring into the slaughter-house and convey from it animal bodies in their most healthy state, and to teach on the broadest scale whatever favours economy, sanitation and civilization. His long connection with the Model Abattoir Society led to the creation in 1922 of the Benjamin Ward Richardson Memorial Lecture.

In 1884 Richardson delivered a lecture before the Society of Arts 'On Painless Extinction of Life in the Lower Animals'. Here he discussed the history of the lethal process, and its present application; the relation of the lethal process to other processes having the same object; and the extension of the lethal process to the slaughter of animals intended for food. He showed that in sheep the use of carbonic oxide in killing had no bad effect upon the flesh, the narcotized animals yielding blood as freely as did others.

It has been well said that 'few men have done more to alleviate the sufferings of the animal kingdom than Benjamin Ward Richardson both in the nature of inventing means of painlessly disposing of the injured and superfluous and in the reform of the routine of the slaughter house' (*The Lancet* 1896, 2, 1575).

Richardson delivered a course of lectures to the Society of Arts on 'Occupations in Relation to Health and Disease', and wrote a popular

manual entitled *Health and Occupation* which included a statistical summary of the subject written by Dr. William Farr. In preparing these studies on the health of industrial workers Richardson, with a grant of fifty pounds for expenses, from his friend, Bernard Shaw, visited the Potteries in Staffordshire and other industrial centres to collect data at first hand. He dedicated to Farr his *Diseases of Modern Life*, in 1876, 'in simple remembrance of a friendship which through the long spell of twenty-five years has been an unbroken chain of pleasant memories.'

Richardson also worked as a health reformer and as a member of the vestry of the parish of St. Marylebone, though his project of parochial workshops or working offices for the poor was not accepted by this body. He urged the necessity for healthy housing of the people, for healthy recreations, for health-giving habits to be taught, and particularly to the children, whose well-being he did his best to assist as a member for several years of the London School Board. In his laboratory he studied the synthesis of food-stuffs, prepared a synthetic milk and investigated bakehouses and modes of making bread. Many of his designs were practical and feasible, but others, like his city of Hygeia, were deemed Utopian. For example, he suggested gardens and pathways for pedestrians along the roofs of London as a means of relieving traffic congestion; he proposed draining the whole country by putting drain-pipes and sewers along one side of the railway lines with water-pipes on the other side of the rails, using the lakes of England and Wales as reservoirs. By this method he claimed the drainage of England would be universal and perfect and the products derived as sewage might be all restored to the land to fertilize it, while the water-pipes would prevent any water-famine. Another of his schemes, which Hitler's air-raids have now rendered more feasible, was that St. Paul's Cathedral should not be hidden by houses but that a grand esplanade and gardens should be made from it down to the Thames.

Richardson was too impulsive and idealistic to have been a great health administrator, but he rendered noble service to the cause of public health by his popular lectures, by his writings and his gifts of literary exposition. For many years he stimulated the interest of the public in this field and educated them in the truths of hygiene.

Chapter IX

THE CAMPAIGN AGAINST ALCOHOL

'Call things by their right names. . . . Glass of brandy and water! That is the current but not the appropriate name: ask for a glass of liquid fire and distilled damnation.'

ROBERT HALL, 1764-1831

BENJAMIN WARD RICHARDSON was one of the great temperance reformers of the nineteenth century. Newsholme regarded Richardson's powerful advocacy of abstinence from alcohol as his highest contribution to public-health work and the chief outlet of his zeal as a hygiene reformer.

Richardson came to the study of the subject with an impartial mind: he had no prejudices inherited or acquired against the use of alcohol. In *Vita Medica* he tells us of the great home-brewing of October ale in his father's house and how beer was the customary drink for boys and men. His early associations and the medical education of his day accustomed him to the use of beer, wine or spirits. 'There was nothing in the treatment of the sick,' he says, 'as I learned it, that suggested a word of opposition. Every one of my instructors was imbued with the idea that disease could not be met without alcohol as a food or as a remedy.'

Improvement in the social abuse of alcohol had arrived in the nineteenth century. It was no longer true, as Sydney Smith said, that after dinner, even in the best society, one-third at least of the gentlemen were always drunk. Nevertheless, large quantities of alcohol were consumed by all classes of the community both in health and in sickness, and prodigious quantities were prescribed by the medical profession for their patients. Dr. H. G. McGregor notes that as late as 1854 'the quantity consumed in one year by the patients of the Royal Sussex County Hospital amounted to 1,273 bottles of port, 80 bottles of sherry, 587 bottles of brandy, 172 bottles of gin, 5,307 gallons of beer, and 3,409 gallons of porter, at a cost of over £650; and this in a free hospital for the indigent poor, of whom no more than 1,000 were treated in that year.'¹

¹ *Jl. R.I. P.H. & Hyg.*, "Alcohol and Alcoholism", 1948, vol. II, 269

A doctor who did not prescribe alcohol freely was not only avoided by patients but was regarded as heterodox and more than eccentric by his professional brethren. At a medical meeting at Birmingham Richardson witnessed the social ostracism meted out to Dr. John Higginbottom, FRS, of Nottingham, whose only failing, according to Sir Charles Hastings, was that 'he had a bee in his bonnet—he denounces wine and all alcoholic drinks and is himself a total abstainer'! 'Down the open path,' said Richardson, 'made by the critical crowd, Higginbottom strode, speaking to no one and nodding only now and then to some old friend. It was clear he knew and felt his position; no one could help feeling it; and so he passed away, and I never saw him again.' But the impression did not fade, and on later reflection Richardson noted: 'I had seen a pilgrim father—a man who feared God, eschewed evil, and who would have been as ready to meet the rack or fire as he was to meet the assembly through which he had passed, and I give this memory of him as sincerely as I hope any future pen may write it. But at the moment the scene had no telling effect upon me. The man, I thought, really had a "bee in his bonnet". He must be wrong, and the majority, because it was a majority, must be right.'

In his early professional days Richardson socially was regarded as an adept in making whisky punch, and at every dinner at which he was a guest was selected as a connoisseur in wines; while he was so impressed with the value of and necessity for alcohol that if any applicant who said he was an abstainer came to him for life insurance, the fact was stated to the directorate and regarded as adverse to the proposal. In reviewing James Miller's work on *Alcohol: Its Place and Power* (*San. Review & Jour. Pub. Health*, 1858, IV, 32) Richardson wrote: 'The results of experience as well as the researches of science show most satisfactorily that moderate use of alcoholic drinks is one of the necessities of civilized life.'

As a medical practitioner, Richardson could not but be well aware that alcoholic abuse was productive of much social misery, moral degradation, insanity and crime, but it was his laboratory investigations and clinical and pathological evidence that gradually led him to a complete reversal of the traditional and conventional views of alcohol, its action and effects. 'There are plenty to deal with it morally,' he said: 'I stand forth as the interpreter of Nature.'

After investigating nitrite of amyl, as related in Chapter VI, Richardson, from 1866 onwards, studied the methyls or methylic group, in

which alcohol is included. In 1869 he wrote: 'Alcohol, one of the most commonly used of accredited remedies, has never been properly tested as a remedy for human diseases. I mean by this, that it has never been tested as alcohol of a given chemical composition, of a given purity, and in given measure.' He found that alcohol did not raise the temperature of the human body, but lowered it, and his announcement of this conclusion was received with incredulity at the meeting of the British Association for the Advancement of Science in 1866. So great in those days was the belief in alcohol that his report was gravely questioned and was handed back for correction, but the observations proved to be accurate. They showed that under the influence of alcohol the temperature of the body was liable to fall from three-quarters to three degrees. Moreover, this depression of temperature was not transient but persisted for several days after dosage. Richardson's animal experiments showed that small quantities of alcohol are injurious to animal protoplasm: for instance, he found that a solution of alcohol, 1 to 1,000, 2,000, or even 3,000, was fatal to fresh-water medusæ.

He established also the facts that alcohol was not a food, but a potent drug; not a stimulant, but a narcotic. He came to speak of the animal body as a 'water-engine': it could not carry out its work on any other system—'It is as much a water-engine as the steam engine is. I cannot deny that other fluids than water will act as motors, for I have seen a spirit engine; but the body is not an engine of this class, and no one can treat it as such. Some try to make it one, with the results in tissue degeneration of muscle, vessels, liver, kidneys and nervous system'. Therefore, apart from the moral evidence against alcohol, which he recognized and sympathized with, he said: 'The physical was the strong and immovable evidence telling that alcohol was not only quite unnecessary for life, but an enemy to life; and as that was my knowledge, so it was my duty to proclaim the truth.'

In 1871 at the request of Mr. Robert Rae, then secretary of the National Temperance League, he readily signed 'A Medical Declaration respecting Alcohol', which had been drawn up by Dr. E. A. Parkes pledging the signatories to prescribe alcohol with as much care as they did any powerful drug. In December 1874, and January and February 1875, he delivered the Cantor Lectures before the Royal Society of Arts, dealing with the historical, chemical and physiological aspects of alcohol, which impressed not only medical but public

opinion generally. Before these lectures were completed Richardson, according to Mr. Rae, became a firm total abstainer.

For the rest of his life, by tongue and pen, Richardson proclaimed with the courage of conviction his disbelief in alcohol as a beverage or in the ordinary treatment of disease. In 1878 he published a course of addresses on total abstinence, the first of which had been delivered to the Hunterian Society and the rest to the National Temperance League. In 1880 appeared his *Temperance Lesson Book*, which was a series of short lessons on alcohol and its action on the body, designed for reading in schools and families. Chapters dealing with alcohol and the diseases connected therewith appeared also in his *Diseases of Modern Life* (1876) and the *Field of Disease* (1883).

As regards another social narcotic, tobacco, Richardson was at one time a constant pipe-smoker. During the last twenty-five years of his life he abstained from smoking, because of its bad effects on health and vitality (*Vita Medica*, pp. 458-9). In 1865 he published a short essay entitled 'For and Against Tobacco. Tobacco in its relation to the health of individuals and communities', and in his *Diseases of Modern Life* devoted three chapters to the subject of tobacco. He regarded tobacco as innocuous as compared with alcohol and admitted that it could act as a sedative, but he excluded the tobacco-shop from a place in his ideal city of Hygeia.¹

His conversion to temperance and his preaching thereof in popular lectures throughout Great Britain lost him a large number of friends as well as patients. 'I remember,' he writes in *Vita Medica* (p. 377) 'nothing like the mischief which befell me in 1869 when I made the first sortie. Before then my lecture rooms had been filled with medical men. Afterwards the rooms were simply vacant. . . . I was marked like Higginbottom with the sin of disbelief in the ancient faith, and was known only by one friend. The others kept at that cold distance from one in which I had seen him placed, and I do not hesitate to say that his conduct gave me comfort and satisfaction.'

As J. D. Rolleston wrote: 'The remarkable change in this country, both in medical and lay opinion, as regards the therapeutic and social

¹ Mr. Arnott, who met Richardson in the later years of his life, when the doctor and his family were spending a summer holiday at Dovercourt, remembers a friend saying to Richardson: 'How is it since you oppose tobacco, that your two sons smoke like chimneys?' Richardson replied: 'I know they do, but I can't stop them.'

use of alcohol can be attributed in no small measure to Richardson's utterance as lecturer and writer,' and it may be added also to his scientific investigations of the subject.

Richardson was fortunate enough to see the change take place in his lifetime, for he wrote in *Vita Medica* (p. 373): 'I think we have progressed rapidly. We were the citizens a generation or two ago of an alcoholic world. Alcohol literally as well as nominally ruled the roost. A man or woman who would not offer a glass of wine was branded as mean, ignorant or vulgar. Not a medical consultation could be held, but that in the consulting room were found the wine bottles and the wine glasses. They are rarely, if ever, there now. People who were about to insure their lives were rejected if they were abstainers. They are certainly now daily rejected because they are imbibers of the very substance that once secured them.'

But the greatest change he lived to see was in medical opinion and in the treatment of the sick. In contrast with the time when 'it was impossible to broach the subject of avoidance of strong drink, without some insult or indignation', when brandy was the 'sheet anchor', and 'the head was despairingly shaken if liquor were not dispensed', he witnessed the establishment of the London Temperance Hospital, and became president of a British Medical Temperance Association which shared his views and applauded his advocacy of total abstinence.

So great was Richardson's zeal for the temperance cause that, although owing to the pressure of other work he had given up his hospital appointments many years previously, in 1892 he accepted an invitation to join the staff of the London Temperance Hospital as physician, and retained this post until the time of his death.

In 1888, in an article on 'Alcohol at the Bedside: a Clinical Study', Richardson wrote: 'Between the general use of alcohol as a supposed food or luxury, and its use as a medicinal agent, there is the broadest distinction. . . . I have never given up the medicinal use of opium or alcohol.'

Dr. L. A. Parry, who was Richardson's house-physician at the London Temperance Hospital, informs me that Sir Benjamin very seldom prescribed alcohol for his hospital patients.

Until Richardson's researches, begun in 1866, there was relatively little accurate and experimental knowledge upon the subject; and the popular belief that the effect of alcohol was beneficially soothing and stimulating was accepted without criticism. It was assumed that

alcohol, always ready to hand, was a drug of permanent value as a stimulant and one which any person might use at his own discretion! Richardson's work rectified that error. That the people of Great Britain to-day are a more sober and healthier nation is due in great part to Richardson's advocacy of temperance. For this cause he made many sacrifices: for a time he lost friends and patients, his income decreased and he hazarded his scientific and professional reputation. But he could not do otherwise than bear public testimony to his beliefs. The strife was long and bitter, but he saw the fruits of success before he died—a complete change in the outlook on alcoholic excess and the use of alcohol in medical treatment.

Chapter X

STUDIES IN GENERAL LITERATURE

*'Whether 'tis yours to lead the willing mind
Through History's mazes: and the turnings find;
Or: whether led by Science: ye retire
Lost and bewildered in the vast desire,
Whether the Muse invites you to her bowers:
And crowns your placid brows with living flowers!
Or godlike Wisdom teaches you to show
The noblest road to happiness below.'*

G. CRABBE. *The Library.*

IN DESCRIBING Benjamin Richardson's medical, scientific and public health work, an account has been given of many of the books, lectures, pamphlets and addresses which he wrote. His writings cover a vast field ranging from papers to the Royal Society and treatises on his medical discoveries to elementary and popular handbooks on temperance and hygiene.

These gifts of literary exposition were displayed early in his professional career. So highly was Richardson esteemed by his medical contemporaries that in 1856 he was chosen to deliver the Oration at the eighty-third anniversary of the Medical Society of London. He was then only 27 years old! He chose for his subject 'The Vocation of the Medical Scholar', a title borrowed from the German philosopher, Fichte. It is an eloquent, scholarly and philosophical address, one of the highest flights of Richardson's soaring spirit, in which he elevates the study of medicine to the empyrean, and expresses his purpose with a wealth of phrase and imagery. He said 'The Vocation of the Medical Scholar embraces many parts. In his sphere, this Scholar is a teacher, an arbitrator and a perpetual student in the Academy of Nature.' And he closes the Oration with the following words: 'In the world of knowledge, as a whole, in the world of medicine as a part of that whole, TRUTH—its defence, its advancement—includes, in one sentence, the beginning, the midway, the end of the Scholar's Vocation.' Richardson lived for this ideal, and the medical world of the

nineteenth century was fortunate in having its high calling proclaimed by one who was both a physician and a man of letters.

He was a prolific writer and had an excellent literary style, clear yet rich in illustration and, as J. D. Rolleston observed, free from the pomposity which marred many medical writings of the Victorian era. In an address on *Natural Selection for Science and Art*, delivered before the Liverpool Institute in 1884, he protested against 'The silly sentiment that for a man of science to write so plainly that he who runs may read him is for such a man of science to be designated as a popular writer and, therefore, to be classed as one who is not strictly a man of science at all.'

Richardson was learned in the history of medicine, and his medical biographies have permanent value, for he records about eminent men of the past many facts which he had collated and which otherwise would have been forgotten. In 1900 his daughter, Mrs. Martin, the Stella of the City of Hygeia, brought out *Disciples of Aesculapius*, with a short biography of her father. These two volumes contain the biographies of some forty-six distinguished medical and scientific workers (with their portraits). Most of the material had previously appeared in the *Asclepiad*, a quarterly journal, which ran to twelve volumes and of which Richardson was both editor and author. One volume appeared in 1861, the remaining volumes (I-XI) from 1884 to 1895. Richardson dedicated the second volume to the late Lord Shaftesbury in recognition of his truly noble nature and in acknowledgment of many kind and generous encouragements.' This journal is a remarkable collection of clinical, scientific, biographical and historical medical work, and is of considerable value as a book of reference. Richardson continued it until his death.

Sir William Collins, who knew Richardson well, described the painstaking method he pursued in writing the medical biographies. 'Richardson's plan was first to get the best portrait available of his subject for his easel, to study the physiognomy with the scrutiny of a Lavater and the cranium too, though with less particularity than Gall and Spurzheim; then to obtain a sample of the handwriting or an autograph of his sitter. Next he would visit the scene of his labours, imbibe the *genius loci*, gather associations and memories, and reconstruct the life and times of his subject. Then the first or the best available editions of his works were studied and epitomized. Word-pictures were deftly drawn, comparisons with contemporaries were

instituted, reflections were interspersed, and lo, the Aesculapians of the seventeenth, eighteenth or nineteenth century became flesh and blood and were made to live again by the reanimating skill of this great literary artist.'

Richardson employed many of his summer holidays in this quest for biographical material. For instance in his critical study of Edward Jenner, whom he regarded as a 'caressed, flattered and fortunate Aesculapian,' he wrote: 'It was once my fortune to live for three months, during holiday time, near the scene of his long life. In the time of residence there I made every inquiry possible as to the opinions which have flowed down from friends and neighbours concerning this man.' As far as possible he pursued this course with his other biographical studies in this country and abroad.

Even with medical luminaries of the past he often had interesting personal links and associations. The association through his mother with William Cheselden has been mentioned in the first chapter of this book. Another biography records the enduring tribute which he paid to the *manes* of William Harvey.

When William Harvey died on 3rd June, 1657, after twenty-three days he was buried in the vault of the Harvey Chapel, then recently built by Eliab, his brother, at the church at Hempstead, about seven miles south-east of Saffron Walden. The body was borne out of London to Essex followed by the President, Dr. Alston and many Fellows of the College of Physicians in their robes and gowns. John Aubrey the antiquary and historian was also at the funeral and helped to carry the body into the vault. In 1847 Richardson found the case or chest containing the remains of William Harvey lying among a number of chests, with coffins, containing other members of the Harvey family. During a period of thirty-five years Richardson often repeated his visit. On 28th January, 1882, the lofty tower of the church fell, the church became a ruin but the Harvey Chapel remained entire. The coffins in the vault were exposed to rain and air. As the result of Richardson's representations to the Royal College of Physicians, he was, together with Sir James Risdon Bennett, and Drs. E. H. Sieveking, H. W. Acland and Richard Quain, appointed member of a Committee of the College, to remedy this state of affairs. The necessary repairs were done, and on 17th October, 1883, eight Fellows of the College, including Richardson, carried the repaired leaden case containing Harvey's remains out of the vault and placed it in a sarcophagus

of Sicilian marble in the Harvey Chapel. Then the President of the College, Sir William Jenner, having laid the works of Harvey and a scroll with other records upon the leaden case, the sarcophagus was closed. Richardson also investigated the bust of Harvey, which shortly after the great physician's death, was erected on the northern wall of Hempstead Church, near to the Harvey Chapel, and adduced evidence for the face being taken from a death-mask (*Lancet*, 30, 1878).

In writing the biographies Richardson disdains chronological sequence. He begins with William Gilbert, the pioneer in electricity and magnetism, who died in 1603 and then passes to a former contemporary, Thomas Wakley, MP, Coroner for Middlesex, the founder and editor of the *Lancet* and a stalwart reformer of many medical and political abuses. Richardson's early paper on the antiseptic properties of gases, read to the Medical Society of London in 1851, was favourably commended in the *Lancet*, and as a result Wakley made Richardson's acquaintance and became his friend. This led to Richardson's doing literary work for the *Lancet* and, when he ceased to do this regularly, Wakley often consulted him about questions to which correspondents desired answers and sent him books for special review. Their last meeting was at a dinner-party at the Wimbledon house of Mr. John Churchill, the publisher.

In writing of John Keats, the Aesculapian poet, Richardson mentions that he knew two of Keats's fellow-students at the United Hospitals of St. Thomas's and Guy's, who lived with Keats in the Borough. One of these was George Wilson Mackereth; the other, a more intimate friend from 1856 to his death in 1864, was Henry Stephens. Stephens, who later forsook medicine, was the author of a work on hernia and introduced creosote into medical practice. He told Richardson many details about Keats and described how in writing *Endymion* the poet evolved the line, 'a thing of beauty is a joy for ever'.

When Richardson studied the achievements of Benjamin Rush he dwelt sympathetically on his life and work, especially regarding the American physician's antipathy to war, slavery, alcohol, oaths and the death-penalty. Like Boerhaave of Leyden, Richardson loved his library and laboratory; he admired Spinoza, Von Leeuwenhoek—the pioneer of microscopy—Antonio Scarpa of Pavia and Ambrose Paré. He gave an account of Wiseman, who argued for the efficacy of the royal touch of Charles II in curing the 'King's Evil'.

Other interesting biographies are those of John Brown, the inventor

of the Brunonian system of excitation; Morgagni, the early pathologist; Laennec, whom he terms 'the thoracic eaves-dropper'; Dr. John Freind, an early medical historian and politician; Sir Thomas Browne; Sir Kenelm Digby; John Locke, philosopher and physician; Robert Boyle, whose researches he commends for their 'greatness, their usefulness, their simplicity and their truthfulness'. In telling the story of the two brothers William and John Hunter, he concludes that 'they were twins in science, but William was the first-born'.

On 28th March, 1894, Richardson took the place of Mr. Speaker Peel at the ceremony of unveiling the statue of John Howard at Bedford, and delivered an oration on the life-work of this great philanthropist and sanitarian. Describing Howard's 'Winter Journey' and travels abroad, Richardson, with his wonted felicity of phrase, said these travels were designed not 'to visit courts and ape their manners, but to dive into dungeons, to compare the misery of men in different climates, to study the arts of mitigating the torments of mankind'.

Richardson's short biographies of John Snow and Sir Edwin Chadwick have been mentioned already. Another which he published in 1891, was that of Thomas Sopwith, mining engineer and geologist (1803-79). Sopwith, who in his later years suffered from mitral disease of the heart, was a patient of Richardson: Sopwith's daughter, Ursula, married David Chadwick, and the book is dedicated to her. As the title indicates, the biography consists chiefly of extracts from Sopwith's diary, which he carefully kept for fifty-seven years. Richardson acted mainly as a judicious editor, but in describing his first meeting with Sopwith he incidentally records some incidents of his own life.

In September 1856 Richardson was invited by John Lee, LL.D., President of the Royal Astronomical Society, to form one of a company of scientific visitors at his residence, Hartwell Park, near Aylesbury. There were some thirty or forty guests, representative of many branches of science. Formal sittings were held in the library every morning and subjects were invited for discussion by Dr. Lee. One morning no suggestion was forthcoming until Richardson facetiously whispered to his neighbour, Thomas Sopwith, 'Why not propose the financial state of the Peruvians?' Sopwith voiced the suggestion and it inspired Mr. Thomas Dobson to give an excellent talk on the subject.

At one of the evenings at Hartwell, when Dr. Lee entertained the members of the Mechanics' Institution at Aylesbury, Richardson exhibited the heart of a young calf, which he dissected as he illustrated

and explained the machinery of the circulation, and detailed at great length the successive steps by which he was led to the discovery of ammonia in the blood.

Photography was then a new invention and in the mornings, says Richardson, 'we photographed everybody and everything'. He was probably the youngest of the party at these gatherings, and one day engaged in a wrestling match on the top of a hill with Mr. James Glaisher, astronomer and meteorologist, who was nearly twenty years his senior. 'After a stiff tussle we both fell together and rolled from the top of the hill to the bottom, much to the general amusement.' At night, in the drawing-room, Mrs. Lee entertained them with music: in this way the hospitable Dr. Lee blended instruction with pleasure.

Sopwith's life story is worth reading, as it gives an excellent picture of the times when the leisurely traditions of the eighteenth century were merging into the industrial and more hurried conditions of the nineteenth. He records an interesting meeting with Sir Walter Scott and his daughter in Scotland on 3rd April, 1828.

Richardson made excursions into the imaginative fields of literature. He wrote plays and poems, and although these effusions usually had only a private circulation some were published in the *Social Science Review* and other journals. Of these *parerga* perhaps the best are the three poems: 'The Arsenic Wreath', which is curious and powerful in poetic diction; 'Anacaona'; 'Balthasar's Lament', described as a free translation from the Latin; and three plays, entitled respectively, 'A Day With Cromwell', 'The Blacksmith of Antwerp' and 'The Mask of Fame'. All Richardson's dramatic pieces, especially 'The Mask of Fame', possess an undercurrent of that quiet humour which was ever present in his literary work and conversation.

One novel, *The Son of a Star: A Romance of the Second Century*, was published in three volumes in 1888 by Messrs. Longmans, Green and Company. Richardson based it on the history of Simon Bar Cocheba or Bar Kokba, the Hebrew leader of the insurrection against the Romans (A.D. 132-135) in the later years of Hadrian's rule¹. Bar Cocheba was at first successful, but was finally slain at the village of Bethar, near Caesarea. The novel was dedicated 'with all my heart' by the author to his wife, and appears to have been successful, for a one-volume edition appeared in 1889. It is a mystical tale, reminding

¹ See *The Life and Principate of the Emperor Hadrian* by B. W. Henderson, London, 1923, pp. 213 ff.

the reader of the romances of Bulwer Lytton and of Rider Haggard, and is written in the historic present. The scene opens in Britain, where the Emperor Hadrian is visiting a large Roman encampment, and passes by way of Rome and Egypt to Palestine.

The Jewish hero, Simeon, 'the son of a star', refuses to sacrifice to the Roman gods; his garments are covered with bitumen and he is set on fire as a human torch but escapes to fall in love with the heroine, Erine Leoline, and to sail with her in a wonderful submarine vessel known as Leviathan, which takes them to Juverna, the Island of Eternal Youth. Even more improbable is the disguise of Huldah, a beautiful Jewess, as the young Antinous, Hadrian's cupbearer. Simeon leaves Juverna to head an unsuccessful insurrection of the Jews in Palestine against the Romans. Finally he meets Erine again and the united lovers sail away in the ever-useful Leviathan 'to the beauteous West'. Fantastic as the story is, it is written with much literary merit and historical and antiquarian knowledge; while Richardson's poetic vein is shown in a number of lyrics included in the book. One of the characters, Tryphon, Hadrian's Jewish physician of the school of the Asclepiades, gives the author scope for many medical allusions; for example, he mentions *digitalis* as present in the foxglove—'the plant which kills the heart'.

Richardson needed a much longer apprenticeship to the art of fiction before he could have become a great novelist. In this field he was outshone as a medical novelist by his American friend, Dr. Weir Mitchell. In the memoir of Benjamin Rush in *The Asclepiad* Richardson alludes to this friendship, as follows: 'One fine day in the past glorious summer, I wandered through Greenwich Park with two men of kindred genius, each in his way choice companionship, Weir Mitchell of Philadelphia, and Thomas Woolner, our great English sculptor; Woolner, vivacious as the glinting light through the foliage, and Mitchell, dreamy as the shades.'

Richardson was endowed with both these characteristics of his friends: he was certainly vivacious in social intercourse and, as his writings fully indicate, he was equally a dreamer and a poet. These features of his character are fully displayed in his last book, *Vita Medica*, which is one of the most remarkable medical autobiographies ever penned. Had he maintained the high literary level of the first nine chapters, in which he recounts the story of his early years, it would have been a great autobiography. But the remaining nineteen chapters

of the book are unequal, and the last chapters consist of little more than fragmentary notes on a variety of subjects. However, it is only just to remember that death prevented the author from making a final revision: these last chapters represent the writing of a tired man, and, as Sir Walter Scott said of *Peperil of the Peak*, 'smell of the apoplexy'. The manuscript of this work is in the Library of the Royal College of Physicians and contains unpublished passages.

Vita Medica is and always will be a mine of information to Richardson's biographers. In writing the first part he returned with loving recollection to the days of his youth, and as a result he gives a vivid picture of the medical education and practice of the early nineteenth century, which is not only delightfully written but is of historical value. Even in the later chapters one finds a literary cameo like the following: 'The old physician and practitioner wore a special and recognizable dress: his coat was cut as a barrister's is now; he often had knee-breeches and Hessian boots; he displayed a white necktie and flowing shirt front with frills; he wore ruffles, and occasionally carried a cane with a perforated box at the top which held camphor or some other smelling substance. He wrote a large hand on prepared paper, and taking him all in all, was a distinctive gentleman whom everyone knew as a doctor. All this has departed, and the doctor now is clothed like other men.'

Literature, like music, was a solace to Richardson in the midst of a busy professional life, and to biography and medical history he has made contributions of considerable merit.

Chapter XI

LAST DAYS AND DEATH

*'Bear from hence his body—
And mourn you for him! let him be regarded
As the most noble corpse that ever herald
Did follow to his urn.'*

CORIOLANUS

IN 1880 Richardson removed from 12 Hinde Street to the adjacent 25 Manchester Square, which was his home until his death in 1896.

Richardson travelled extensively in England, Wales and Scotland and in 1877 he made a tour of Ireland; he also visited the Continent. These holidays were invariably combined with some useful quest either for medical biography or archæology. He always retained his antiquarian interests, which were first inspired by his master, Henry Hudson, and in 1877 he was elected a Fellow of the Society of Antiquaries to which he contributed several papers. In his later years he went out little socially, but he made an exception in the case of 'Noviomagus', a dining-club of the Society, of which he was President; the dinners were held once a month during the winter. Formerly, he had been in great request at public dinners, being a spirited and entertaining table companion and a good after-dinner speaker.

He had friends in many walks of life—professional brethren, politicians, positivists, grateful patients, engineers, literary men and women, and ecclesiastics of different religions. Among the latter he numbered Cardinal Manning, with whom he discussed a contemplated book to be entitled *The Physiology of Sin*. This book was never written: had it been, it might have supplied a scientific explanation of disorders of conduct.

In 1893 he contested the Walton Division of Liverpool as a Liberal, but though he fought a hard fight he lost by 3,707 votes to 2,493 cast for him. During the election he wrote to his family. 'I think I shall win, but do not be disappointed if I do not. I shall not be. My one desire is to be at home again with you all.'

It will readily be apparent that Richardson could not have accomplished the vast amount of work recorded in these pages if he had not been endowed with great physical strength as well as mental energy.

Mrs. Martin, his daughter, stated that in reply to a question at the end of a long day of activity, he replied: 'Tired? I am never tired, I do not know the meaning of the word tired'; he radiated vitality and brought an atmosphere of energy into a room when he entered it. His motto for each day was 'Make the sun your fellow-workman', and for years he fulfilled it. After 1893 his bodily health began to fail, but his mental energy continued unabated, and he was busy writing *Vita Medica* and recalling in its pages the struggles and triumphs of his crowded life. He recognized that his remaining days were few and that death was drawing near, and said to his daughter: 'I have learned to meet calmly every emergency in life, now I must learn to meet death.'

On 14th November, 1896, Sir Benjamin presided at a Temperance lecture given by Dr. Joseph Lees at Sion College, Victoria Embankment. He seemed then to be very weak, but continued his professional labours, and four days later was able to attend a meeting of a company in the City, of which he was a director.

Work was the keynote of Richardson's life and he desired that when he could no longer work he might no longer live. Mrs. Martin recorded how this wish was fulfilled. On 19th November, Richardson rose at his usual early hour and spent the day actively. He was summoned to see a patient who was seriously ill in one of his wards at the Temperance Hospital and returned to Manchester Square in the late afternoon. At eight o'clock in the evening he went to his library and summoned his secretary. 'Take your pen, please: I will add another chapter to *Vita Medica*. Head the page "A Last Word".' He then dictated the following two sentences: 'But I must close somewhere, and it is at this point. I have set myself to record a medical life from the medical side of my own life, not in any sense as a model picture, but in the earnest hope of the day when men of physic shall find in the study of the natural body the grandest work that human intellect can command.' 'Yes, Sir Benjamin?' 'That is all—the book is finished.'

This was Richardson's last message to his fellow men, for whose welfare he had laboured so long and so assiduously. They were almost his last words, for two hours later, after dinner, the over-taxed blood-vessels of his brain gave way and he had a cerebral hæmorrhage. His old friend, Sir Alfred Garrod, was summoned, but the lamp of

Richardson's life was flickering out: he succumbed two days later on 21st November, 1896, at 8.20 a.m., without having regained consciousness. He was then 68 years of age. In his lifetime Richardson had been an advocate of cremation and his body was cremated at Brookwood, Surrey. He was survived by Lady Richardson, two sons and one daughter.

A complex personality left the world when Richardson died. He was a physician, a man of science and letters, a philanthropist, a mystic, and an ardent social reformer. Sir William Collins said of him: 'He had in him a happy blend of the philosopher and the man of action, a union of the mystical with the practical which always fascinates and sways mankind. The humanities and the sciences made equal appeal to him, and his heart was as big as his head.'

He was brought up in a rigid Calvinistic environment but became a man of broad views and tolerance in religious thought. Though at times, like Spinoza, he indulged in a pantheistic conception of the universe, he believed in a supreme and divine being, for, he said, 'No medical man can be a materialist.' He was kind and generous, and made hosts of friends: all of his obituary notices praised his character and work.

He was happy in his private life and fortunate, on the whole, in his career. This is not to say that he did not suffer a certain amount of hostility and even contempt from some of his contemporaries. As we have seen, his fearless advocacy of total abstinence injured his practice and credit, while many of his schemes were regarded at first with incredulity. 'What is your father's last hobby?' a medical man once asked Mrs. Martin with a satirical smile, and his contemporaries called him 'a dreamer'. But, added his daughter: 'He lived to see many of his dreams, his "hobbies" became principles that were carried out, not only in the construction of modern dwelling-houses, but by the change in the mode of life lived in these houses.' Receptive of new ideas in so many fields of scientific discovery, it is curious that he opposed the germ theory with its practical applications, and attacked modern findings on the physiology of thrombosis and embolism. This attitude led to some distrust of his judgment in other branches of research, and he was adversely criticized for publishing 'half-baked theories' and launching into print before he had fully confirmed his conclusions.

Sir Samuel Wilks, in his Presidential Address to the Royal College of Physicians in 1897, extolled Richardson's erudition but did not

highly commend his scientific work. Sir Samuel said: 'Richardson's position in the scientific world was, I think, a very clear one. He was the exponent of science to the outer world. He was greatly interested in all the scientific questions of the day and more especially those connected with physiology, but he had not the temperament nor the inclination for quiet original research. He took the striking facts of the day discovered by others and brought them before the public. . . . It is unjust, I think, to measure any man by some false standard which his friends propose for him, and, therefore, it is no detriment to say that he took no high place in the scientific or medical world, but he possessed the great quality of bringing valuable and useful knowledge before the public, and in this respect he would take his place with other well-known men whose teachings in natural history, astronomy and in other branches of science have been most beneficial to the world. In this light Richardson may be regarded as having been a benefactor to his race.'

Here Richardson's scientific work has been somewhat unfairly decried. He had a high position in the scientific and medical world of his time as is shown by his Fellowship of the Royal Society, by his honorary membership of numerous foreign scientific societies, and by the scientific problems referred to him by the British Association and other learned bodies for elucidation. He was wrong in his conclusions as to the cause of the coagulation of the blood, but his original investigations helped others to advance knowledge of the subject of hæmatology. His studies on the pharmacology of amyl nitrite and chloral are fundamental, and he discovered no fewer than fourteen anæsthetics, while his work on colloids had valuable practical application in treatment. It cannot be truly said of such a man that he had 'not the temperament nor the inclination for quiet original research'.

In describing the character of the Emperor Hadrian in his novel, *The Son of a Star*, Richardson unconsciously depicted himself, when he wrote: 'The versatility of his movements is the reflex of the versatility of his nature. He knows something of everything, and he discusses with everybody, however simple, however learned, that which each one knows best.'

It was probably Richardson's versatility, his activity in so many different spheres of work, that has prevented him from receiving at the hands of posterity due recognition as a scientist. An unsigned obituary

notice in the *Transactions* of the Epidemiological Society, which Richardson had done so much to found and encourage, paid tribute to Sir Benjamin's marvellous energy, but declared that his powers were spread over too wide a surface to produce the effect of more concentrated effort; and unkindly suggested that his teetotalism was partly responsible for his comparatively early death. The writer of another obituary notice (*The Times*, 23rd November, 1896) gave a truer picture of Richardson when he wrote: 'He was a physician of much originality of mind and of great and versatile talent whose fate it was often to be on the verge of some great achievement, from the full realization of which, perhaps by reason of his versatility, he was nevertheless in some way hindered.' Richardson's work on pulmonary tuberculosis, which if pursued might have led to sanatorium treatment at an earlier date, is an example of the truth of the quoted statement.

Sir Clifford Allbutt in his sympathetic obituary of Richardson (*Proc. Roy. Soc. Lond.* LXXV, p. 51, June, 1905) gives an equally true appreciation: 'In his boyhood an ardent naturalist; and for life he remained a naturalist in his diverse interests, and his intense curiosity in all natural phenomena. Had he concentrated his powers upon one department of research, he would have left a greater name to posterity, but he would have been a less interesting, and in his generation, probably a less useful man.'

Richardson might have been so many beings if he had adhered to a speciality. Had he specialized in tuberculosis he would have been a famous chest physician; had he worked solely in the laboratory a great pharmacologist; he could have specialized as an anæsthetist, or as a medical officer of health; well read in Greek and Latin, he might have been the greatest medical historian this country has ever produced and the most readable, if he had given his whole time to researches into the history of medicine; he would probably have been a great writer if he had devoted himself solely to imaginative literature; he might have founded a school of medical psychology. Instead, he chose to be something of everything—to be Benjamin Ward Richardson. And remembering his humanity and optimism, his belief in the divine spark that lurks in mankind and his dedication of his great gifts in so many fields of endeavour to the service of his fellow-men, who shall say that he did not fulfil his destiny?

APPRECIATIONS and OBITUARIES

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Richardson's energy and endurance were marvellous. No subject in or near the sphere of medicine did he leave untouched; in many of them he showed some originality of conception: and none did he fail to enliven with some fresh illustration.

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IN ADDITION to the manuscripts of *Vita Medica*, etc., and notes by Richardson of some of his clinical cases, the library of the Royal College of Physicians, London, possesses a few unimportant letters written by him, and a number of letters which he received from various correspondents. Of these the most noteworthy are a series of letters from Sir Edwin Chadwick. They reveal how closely Chadwick and Richardson kept in touch with one another in their endeavours to improve and extend public health. Chadwick made suggestions for addresses to be given by Richardson on the subject and frequently discussed action to be taken in Parliament or in the affairs of the Sanitary Institute. He took an active and keen interest in his own biography when Richardson was writing it, and expressed gratification at its publication in 1887.

The collection also includes an interesting letter from the future novelist, Marie Corelli. It is written from Fern Dell, Box Hill, Surrey, and dated 28th September, 1883. Marie Corelli described herself 'of mingled Italian and Scotch (Highland) parentage and connections'. She was adopted in infancy by Charles Mackay, the well-known songwriter and educated at a French Convent, where she received 'a first-class musical training, being a proficient on the piano and mandolin'. Mr. Mackay had consulted Richardson, and Miss Corelli begins the letter by giving a report on her father's state of health. She asks Dr. Richardson to see him again in consultation with Dr. Clark, his medical attendant. She also asks Richardson to recommend pupils to her for singing and music, if he knows of anyone wanting lessons. 'Will you name "Miss Corelli, pupil of Garcia", without saying exactly *who* I am.' She adds that she is a very patient teacher and thoroughly knows her subjects. She is much flattered at the pleasant idea of Richardson's daughter taking the trouble to sing her songs. The letter is signed 'Minnie Mackay, Marie Corelli'.

The letter indicates not only Miss Corelli's first intention to make a career as a teacher of music and singing, but throws a sidelight on the musical atmosphere that prevailed in Manchester Square, and the continued interest which the busy physician maintained in music.

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